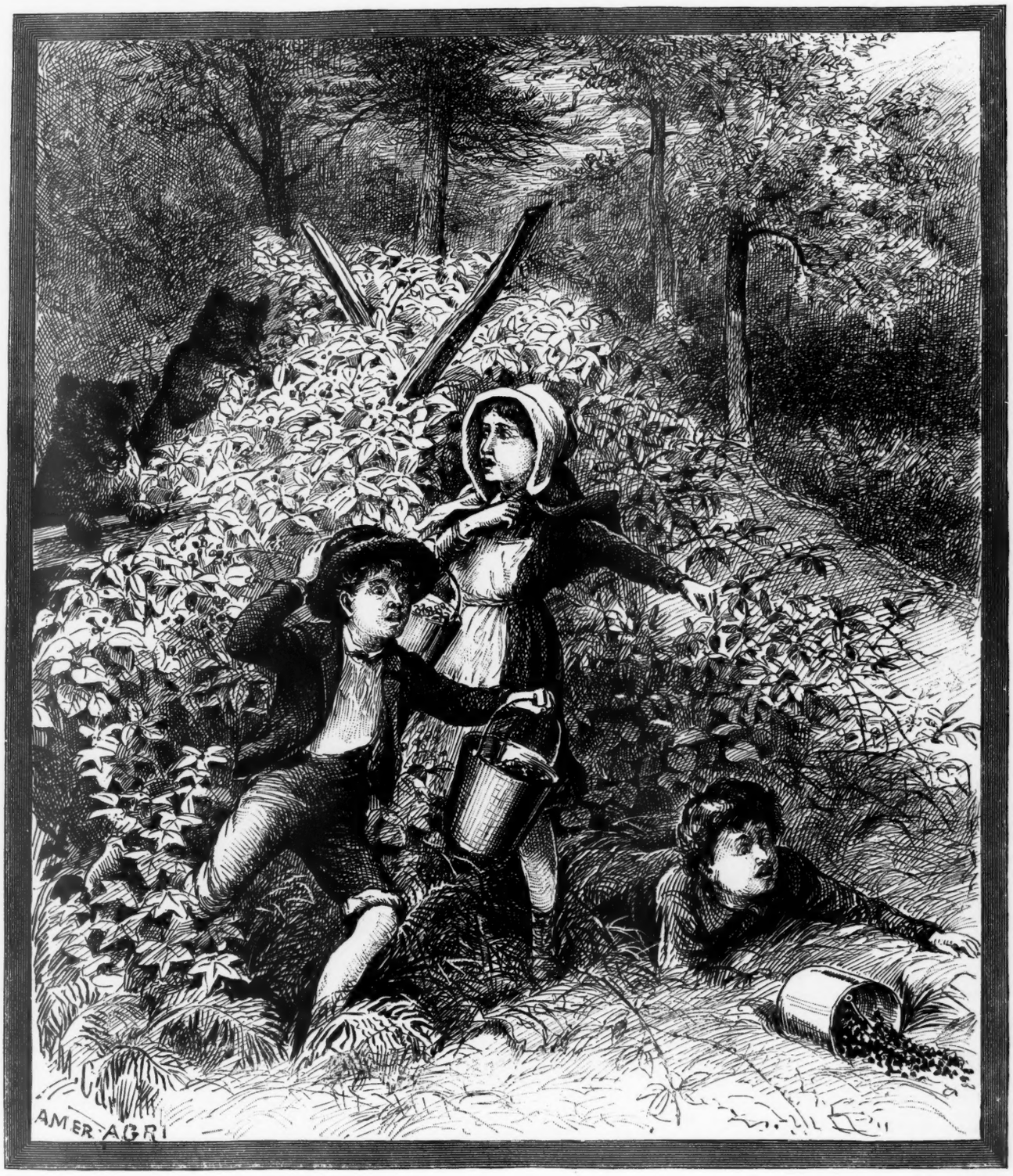
AMERICAN AGRICULTURIST

FOR THE

FARM · GARDEN · & · HOUSEHOLD

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

VOLUME XLVI.—No. 8. NEW YORK, AUGUST, 1887. NEW SERIES—No. 487.



AN UNEXPECTED CALL!

Drawn and Engraved for the American Agriculturist.

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ENTERED AT THE POST OFFICE AT NEW YORK, N. Y., AS SECOND CLASS MATTER.

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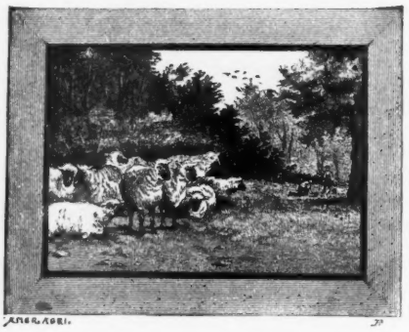
August.

A reaper from the field appears;
Sweating he walks, while loads of golden grain,
O'ercharge the shoulders of the seeming swain.
POPE.

FARM · AND · GARDEN · WORK
· AUGUST, 1887. ·



On a well-managed farm there should never be a time when it may be said there is nothing to be done. A ship-captain, who is a good disciplinarian, when all other work fails, on a long voyage, has the anchors polished. What the anchor is in this respect to the ship's commander, the hoe is to the prosperous farmer. To keep that implement bright by cutting down weeds, differs from polishing the anchor, as it is useful work. A friend about to address a farmers' club, a short time ago, asked us what he should talk about. "Weeds," was the reply. "If you do not know enough about the injury weeds do the farmer, talk about their beneficial effects." "Beneficial?" "Tell that to the boy who, on a hot August day, is at work in a corn-field." "Just the place of all others, where the weeds, or rather the killing of them, should be recognized as useful." "How so?" "We cut down weeds primarily, that they may not rob the crop of a share of its food; but one who properly uses the hoe, cuts over the entire surface of the soil in such a manner as to leave a light layer of it upon the surface. This light, fine soil is of the greatest benefit as a mulch; in preventing evaporation of moisture from below, it helps the crops nearly as much as does the cutting away the robber weeds, and moreover, this layer of light soil quickly cools at night, and condenses the dew within its pores, which greatly benefits the crop. This is especially the month for killing weeds, and the younger they are attacked, the less will be the labor.

Root crops should be worked until the spread of the leaves interferes with the hoe. White Turnips, sown early this month, will make a good crop to feed early.—Rye, near cities, where there is always a demand for straw, is often a profitable crop, even on poorish soils, but it will pay to use some good fertilizer.—Potatoes should be dug as soon as the vines stop growing. If a moist spell comes after growth ceases, "supertuberation" will take place. This is a long word which English writers use to say that the tubers start anew, and small tubers are produced upon the larger ones, and thus injure the crop. Do not allow potatoes to be exposed to the sun any longer than is needed to dry them.

Live Stock Notes.

We have known farmers in a wooded country, who appeared to look upon trees only as things to be cut down, and in clearing their land, would not leave even a small grove in a pasture. We once remonstrated with such a farmer, whose answer was: "When I want any trees I can plant 'em." "Did he ever plant trees in his pastures?" Not while we lived near him; but his animals, as do those of too many others, sweltered August after August in pastures, in which a small grove of trees would have been a great comfort. If the pasture is utterly shadeless, it will pay to make a shelter. Set up forked stakes, lay poles across them, and lay on a brush roof as a shelter. If the dead leaves look rude, they will make a most comforting shade for animals of all kinds. Cows in full flow, if they get overheated—in fact, sunstruck—will fall off, and often be nearly useless for the rest of the season. It is very difficult to restore such cows, but careful nursing will help. Prevention here is better than any amount of cure. Build a shade. Not only should animals at pasture have shade, but water. A well is better than nothing, but if a stream, however small, can be made to afford a constant supply, by all means utilize it. Often a spring, at no great distance, may be thus utilized at a cost of little labor and less money.—Animals at work during the day, should have a run at pasture at night. If there is a stream at not too great a distance, give them, as well as the boys, a bath after work is over.—The pastures will now fall short, and those who have followed our advice to provide a supply of fodder corn, will rejoice that they have this succulent feed to keep up the flow of milk. Shade, abundant pure water, a full supply of fodder corn, with grain (corn and oats ground together, two quarts at a feed), will carry the cows through this trying month.

Orchard and Fruit Garden.

If the pigs have not already the run of the orchard, turn them in, for the benefit of both. The windfalls will furnish welcome growing food to the young animals, and the orchard will be helped by the destruction of insects, as well as by the manuring it will get. Early apples and pears, near a market, are more profitable than winter varieties. Late sorts rarely need to be harvested before there is danger of heavy frosts, but with early varieties much care is needed. These should remain on the trees until mature, but not until they are quite ripe or mellow. Every fruit grower should look closely to each variety, and ascertain when it has gained all it can from the tree. Every day after this is a loss. Early fruit should be handled with great care, packed in small packages, half barrels, or bushel crates, being large enough for apples or pears, and be honestly packed with good fruit at the top, and the same all through. There is profit in early fruits, especially apples, and those who propose to grow them, should visit the markets, and observe what kinds are most salable, and which arrive in best order.—Peach growers should engage experienced pickers; all should be watched, as an over-ripe peach will spoil all in the basket or crate. An experienced picker knows by the touch or feel whether the peach is too hard to ripen by the time it reaches the consumer, or so soft as to decay on its way to market. Assorting peaches pays; make them into three qualities, firsts and seconds to go to market, and the third to be kept at home for the pigs, or to be dried. Pack honestly. Select fine specimens of fruit of all kinds, to exhibit at the county fairs, severely thinning, to give these a chance.—Insects must not be forgotten. Tack pieces of old carpet, bagging, or other coarse fabric around the trunks of apple trees. Remove them every ten days, and crush the larva or cocoons of the "apple worm" which have hidden under them. Look for the borer in the peach trees, and with knife and wire cut and probe it out. As soon as the Blackberries and Raspberries are all gathered, cut out the canes that have borne, and tie up those that are to bear next year. The Strawberry beds should be cleared of weeds, and before the ground freezes hard, have a heavy mulch of straw or bog hay. Near the coast "salt hay" is preferred.

Kitchen and Market Garden.

Weeds among crops will demand attention. Now that crops are being cleared off, remember that if the land is not occupied by some useful crop, one of weeds will take possession, and make trouble for the future. Spinach, sown late in this month,

and in next, may be a useful crop, or dwarf peas, such as "American Wonder," may be sown, and if it does not give a crop of peas, it will be most useful to turn under as a green manure. Rye sown now will give a welcome bite for the cows, if securely tethered, and also an early green feed next spring, after which it may be turned under. Rye is recommended for large areas only; for small gardens use peas.....In sending vegetables to market, wash, if need be, and make beets, onions, carrots, etc., into neat bunches, of the size that custom has established for the market.....The Chinese rose-colored Radish, if sown now, will make a crop, which dug and preserved in soil as other roots, will be very acceptable to those who are fond of radishes.....Sow the intermediate turnips—Yellowstone, Aberdeen, and Cowhorn. Sown now they will usually make good crops. Rutabaga kinds should be well thinned to ten inches apart.

Flower Garden and Lawn.

While dry, hot weather continues, do not mow the lawn too frequently. The treatment of the grass should now be to strengthen the roots. Water the lawn, if it can be continued occasionally, in a long drouth. Ornamental beds, such as those in ribbon style, etc., should be at their best when cool nights come, and the different kinds should be kept from running into one another. Judicious pruning will keep them in order. It is not advisable to save seeds, unless from very choice plants. Cut away all faded flower-clusters, unless seeds of these are wanted. Seeds of hardy perennials, and of shrubs generally, should be sown as soon as they are ripe, and in a place where they may remain in the ground, without being disturbed, for a whole year, as many tree and shrub seeds will require a long time to germinate. Where this peculiarity is known, sow such seeds in a pot, which can be kept plunged in the soil for a whole season.

Greenhouse and Window Plants.

Whatever plants may be left in the greenhouse, be they ever so few, need the same care as if the house were full. Watering, wetting the walks and walls, to keep a moist atmosphere; the killing of insects, shading, and all other attentions are required, as much for one as for one hundred. Hence, if any plants are taken out, all should be, unless there are good reasons for the contrary. Those plants set outside need a continuance of the care already noticed. Those set outside in their pots, should be examined to see if they are getting pot-bound, and be re-potted, pruned if need be, and made ready to come in-doors. Plants that are turned out of their pots and set in the borders, will be very likely to be greatly overgrown. It is usually better to start new plants from cuttings, etc., but if it is desired to keep the old ones, they will probably need severe pruning both in root and branch. Give these a plenty of time to get established in their pots, before they must go in-doors.

Bee Notes for August.

BY WM. B. TREADWELL.

In sections where dark honey is gathered this month, the nice, white clover and basswood honey should be taken from the hive before it is soiled, or before it is injured by admixture with the darker. Boxes taken off in June and July should be carefully examined, and if worms are found, the honey should be fumigated with sulphur. When dark honey abounds, it is well to take the full frames out of the hive and set away for winter stores, replacing them by frames of foundation. I advise this very strongly, when bees can be secured in the fall from neighbors who made a practice of destroying their bees. So also where aster, golden-rod, smart-weed, or other autumn flowers abound, which produce nice honey; this can be saved, and the less salable buckwheat honey be substituted for winter. Continue the brood-rearing this month, even if it shall be necessary to feed, as successful wintering depends on the care of the bees during this month and the next.

If the honey harvest has closed, see that all empty cells are in the center of the brood next where the queen may deposit her eggs. After the flowers have finished secreting nectar, the bees are much more difficult to handle, and are more inclined to robbery than at any other time. Therefore in removing boxes, be as gentle as possible, and smoke them well before opening the hive.

If any stocks are weak, build them up by inserting frames of brood from others. Keep entrances contracted, as a safety against robbers. If surplus boxes are on, they must be kept warm, to aid wax-working.

Arbor Day in Nebraska.

PROF. CHAS. E. BESSEY, NEB.

"Arbor Day" originated in Lincoln, Nebraska, in the year 1872. The State Board of Agriculture being in session, early in January, the Hon. J. Sterling Morton, on the 4th day of the month, introduced a resolution, and urged its adoption, whereby a day should be set apart each year for the planting. The resolution was adopted, and "Arbor Day" came into existence. It is now a legal holiday, and upon its annual return, the 22d of April, the banks, public offices, and business houses close their doors. The schools suspend their usual routine, and the people all celebrate the day by planting something.

Of course, it is not to be understood that *everybody* plants trees; there are some people in every community who will not do what the masses do. Should it rain manna again, morning by morning these people would, through sheer contrariness, refuse to gather the inviting food. While all the rest were busy, they would doubtless loiter around and suggest improvements in the chemical composition of the heavenly food, or remark upon the undignified attitude of the gatherers. But the dwellers upon the plains very generally join in the Arbor Day observance, and many a tree and shrub is planted in deference to the prevailing sentiment. It has given an impetus to tree planting, such as could not have been secured in any other way, and under its influence many a former barren spot is to-day a shady grove. In the capital city of the State, where I write, may be seen one of the most remarkable examples of its influence. Twenty years ago there was here an absolutely treeless plain; not a leaf was interposed between the summer's sun and the heated ground. To-day there are, by actual calculation, very nearly one million trees within the city limits, and as one now looks over the city, from some tall building, he sees little else than a great green forest. The dwellings are mostly hidden by the dense foliage, and only here and there a tower, a roof, or a chimney assures the observer that he is overlooking a city, and not a veritable forest.

The lesson which this sylvan city of the plains emphasizes, is that the prairies can be changed into forests. No one who has seen this great urban forest now asks whether trees will grow upon the plains. As an object lesson for the whole country, the capital city forest of Nebraska is worthy of careful consideration. What tree-planting has done here, and in hundreds of the smaller Nebraska towns, it may do for the towns and cities of other parts of the country.

HONEY, HIGH-FLAVORED BUT CHEAP.—A traveler in the Himalaya mountains, writing to an English journal over the *nom de plume* of "Eos," speaks of the wild roses as growing in immense thickets, "extending for countless miles" in the lower ranges, and rendering the air "nauseous with excess of odor." He says the honey of wild and domestic bees is far too highly flavored of roses, and was so cheap that you could get four or five pounds for a shilling. [Of course an English shilling.—ED.] The writer describes it as "a land literally 'flowing with milk and honey,' for the former was never charged for by the peasant, and the butter was almost as cheap as the honey."

Value of Common Fish.

SETH GREEN.

I wish to say a few words to the readers of the *American Agriculturist*, concerning the great value and usefulness of what are usually termed the "common varieties" of fish. These include the yellow perch, rock bass, bull-head, sucker, pickerel, and the like. These fish, though they do not command the attention of writers and fish-culturists, that trout, salmon, black bass, white fish, and shad have, still hold a very important place in the fish-supply of the country, and furnish pleasure and food for many thousands of people. The class of fish above referred to do not require the care and attention to make them plentiful that is necessary with the finer or game varieties. Artificial propagation is not required, and about the only thing really needed to keep a plentiful supply in the waters to which they are adapted, is to protect them while they are in their spawning-beds, and fish for them only by angling by hand with hook and line. In this way you get the greatest amount of actual enjoyment in the capture of the fish, and who is there that does not relish a mess of fish caught by himself, better than those purchased, or procured in any other way? Another point concerning these common fish, is that as a rule they are easily caught, and it requires no especially fine tackle to take them, though the most successful fishermen are careful in the arrangement of their hooks and lines, and also keep their hook properly sharpened, and well-baited. A common cane pole, such as can be purchased for a small amount, will be found equally as serviceable as a high-priced, split bamboo, jointed rod. These fish also inhabit large rivers, lakes and bays, which are accessible to the millions. They are also found in the canals, to which thousands resort in summer for the capture of a mess of fish. In such waters as these, the finer grades of fish cannot live and thrive. Therefore the ordinary bull-head, with his great powers of endurance, is a welcome and valuable inhabitant of this class of waters. The yellow perch, with its white, flaky flesh, when properly cooked, is the equal of any common fish in the country. The bull-head is also a most excellent fish, and I have made many a good meal on the usually underrated sucker and mullet. A great many harsh things are said against the pickerel, but it is a good fish, and a suitable inhabitant for the kind of water in which it belongs. It is not a suitable companion for the trout, nor is there a sufficiency of food for them in trout waters, but there is plenty in our large lakes, rivers and bays, and many a day's sport have I had pickerel fishing. As a table-fish, they are not, in my opinion, equal to the yellow perch or bull-head, but when properly prepared are very palatable. While they do not possess the game qualities of the moscalonge, still in some waters I have found them to have considerable "fight" in them, and one of eight or ten pounds weight, affords both sport and an exercise of skill to land. Who has not seen a row of bare-footed urchins sitting on a bridge or the bank of a stream, angling for suckers? And what a happy expression they bear on their faces when they trudge home with a string of them long enough to drag on the ground! Many a great man, and angler as well, has taken his first lessons in fishing from catching the slow-going fish that gains his subsistence by sucking the nutriment from the stones on the bottom of the stream. The value of our common fresh-water varieties is very great. They come in where they are most needed, and with our extensive watered area, no one need be denied the privilege of fishing, or cultivating a love for this harmless and healthful pastime. When the head of the family decides to take the little ones out fishing, and they are all gathered in the boat, each one furnished with a rod, no salmon fisherman, with his rod bending under the strain of a twenty-pound salmon, enjoys with a keener delight the fun than the children, as the perch and rock-bass come flopping in over the side of the boat.

A. B. C. of Agriculture—No. VIII.

SOIL CONSTITUENTS FIRST EXHAUSTED.

In the ordinary course of tillage, the production and removal of crops, only a part of which, if any, is returned to the soil, as we would naturally suppose those constituents, which occur in greatest quantity in the ashes of plants, and in small quantities in the soil, are the first to give out in the soil. The chief of these are potash and phosphoric acid, the former occurring most abundantly in the stems, leaves, and roots, of ordinary crops; the latter in the grain and ripened seeds. Nevertheless the stems, leaves, etc., and particularly edible roots, contain much phosphoric acid, and the seeds much potash. Thus there is a steady draft upon these two soil constituents.

Besides, the nitrogen in the soil, either at present or remotely available as plant food, existing as it does either in some form of organic matter, or as ammonia, or nitric acid, is constantly and severely being drawn upon by agricultural crops. We have, therefore, three substances of vital importance which, if supplied to the soil in an available form, will increase or prolong its fertility almost indefinitely, other things being favorable. These are *Potash*, *Phosphoric Acid*, and *Nitrogen*, in the form to yield either ammonia or nitric acid.

ARTIFICIAL FERTILIZERS.

We have already considered briefly the value of barn-yard manure—the universal fertilizer—of which few farmers who know its value, or are not located upon what they regard as soils of inexhaustible fertility, ever have enough. To supply the lack of stable or barn-yard manure, and to supply in small bulk and little weight fertilizing material for out-lying fields, or fields so high or so distant that the mere hauling of stable manure would cost all or more than it is worth, the demand arises for fertilizers in a concentrated form. This demand is supplied in a more and more satisfactory manner every year, and inasmuch as it is quite impossible for the ordinary consumer—farmer or gardener—to judge of the value of those forms of manures by inspection, odor, texture, or any outward marks, the governments of many of the States, following the example of the German principalities, have passed laws requiring the percentage of potash, soluble and insoluble phosphoric acid, and of available nitrogen, as ammonia or nitric acid, to be printed or branded upon the barrels or bags in which they are sold. At the same time agricultural experimental stations have been established, where, if properly selected samples of fertilizers, sold in the State, are sent, they will be analyzed, and their true value published. Where this system prevails, there is little fraud in fertilizers, and their use is extending year by year. Certain kinds are adapted to general use; others to specific crops, *e. g.*, wheat, tobacco, potatoes, strawberries, etc.

We have, therefore, in these fertilizers, ordinarily reliable, useful, and, if applied with good judgment, economical substitutes for stable manure. The advantages they offer are not to be overlooked. They distribute no weed seed, they are neither bulky nor heavy, being thus easily transported, even where wagons cannot go; and evenly and perfectly distributed by hand. The fact that they add little or no organic matter to the soil, as does stable manure, must be counter-balanced by a system of culture involving the occasional turning under of a sward, or of a green crop of some kind.

Besides these there is a class of fertilizers which do not act directly as plant food, supplying to the soil the constituents taken, or to be taken by the crop, but which by their action upon the soil itself, or upon the plant, or both, either render plant food already in the soil available to the crop, or so affect the plant, as to enable it the more readily to take the supply of plant food it needs for a big crop. Among these substances, lime, gypsum (land plaster), and common salt are conspicuous, and in fact most fertilizers, stable manure included, act somewhat in this way. Thus long before concentrated fertilizers were in use, the fact was known and largely made use of, that gypsum, served upon mowing land, had a remarkably favorable action on the growth of clover, bringing it in where it had apparently disappeared. This effect was produced not by gypsum, which is sulphate of lime, being plant food, which indeed it is, but on account of a specific action upon the plant itself.

The study of the specific action of artificial and concentrated fertilizers is hardly adapted to these articles, important though it is. Every farmer should know about them, and besides it is important to know also that in our manufacturing country there are multitudes of waste products, many of which may be made very useful either applied directly to the land, or as constituents of compost heaps.

VALUE OF COMMERCIAL FERTILIZERS.

We have alluded to the laws requiring the constituents of artificial fertilizers to be marked upon the packages. To understand these statements the buyer must understand that the important constituents, already noted, exist in different forms of essentially different commercial and agricultural value. The commercial value of anything is what it can be bought for, the agricultural value is what it is worth to the farm and to the farmer.

The great source of phosphoric acid is the bones of animals, which consist largely of phosphate of lime. In artificial fertilizers this acid almost always occurs as phosphate of lime, but in three recognized forms: First in the soluble form, as it is in the bones; second, in a form soluble in water to which it is brought by the action of sulphuric acid upon the ground bones, and third, in what is called reverted phosphate—that is phosphate which has been rendered soluble, but has changed back to the insoluble form, but is in a condition very different from the pieces of bone in which it at first existed, being almost infinitely fine. This indeed is the condition which the soluble phosphate quickly assumes, after it becomes diffused by rains in the soil. The soluble phosphate, or soluble phosphoric acid, is by far the most valuable of the three forms, because when placed in or upon the soil, the rains dissolve it, and wash it down into the soil, where it becomes widely diffused, and very soon by the action of the lime or other constituents of the soil, it is changed to the reverted form, and so remains until taken up by the roots of plants. The reverted phosphate in the fertilizer not being soluble in the rains, remains where it is thrown, and to be available to the plant must be thoroughly mixed with the soil. This can of course never be so thoroughly done as the rains distribute the soluable phosphate, hence its lower value. The insoluble phosphate consists of those pieces of bone, which have not been acted upon by the acid to make them soluble. It is of great use in the soil, for the roots of the plants will find the particles and gradually make use of them, but it may not be for a year or two.

There are other sources of phosphoric acid besides bones. Pure phosphate of lime is found as a mineral in the rocks, and is ground up, acted upon by acid, and made available as a fertilizer. It is, however, less easily acted upon, and the undissolved particles are of very little use in the soil, on account of this solidity and insolubility. Another and very valuable source of phosphates is the phosphate rock and river deposits of South Carolina. This stone is much softer, more easily reduced to a fine powder by grinding, and when of a quality to make the use of acid to render it soluble profitable, is of high value. Some phosphate rock contains much lime, which makes it necessary to use large quantities of sulphuric acid, before the phosphate is properly acted upon. Thus it will be seen that not only the analysis should be considered, but also the source of the phosphoric acid, which is not always easy to ascertain.

Potash in fertilizers is always in a soluble condition. Nitrogen, however, exists in many forms. In hair, wool, or leather, it is in a very slowly available form, while in dried blood, or flesh, which decompose quickly, it is very soon available to the plant. In analyses, ammonia is usually reported as actual; potential, which is nearly or quite as good, available, and remotely available, and as in the case of phosphoric acid, each form has a different value.

The other constituents of commercial fertilizers are usually not regarded as having sufficient value to make it worth while to report them.

WATER.

The exceedingly great value of water as means of conveying fertility to the soil and of diffusing it in the soil, must be always borne in mind, not alone in connection with the use of commercial fertilizers, but in every way. There is no way by which stable manure, partly decomposed, can be made to go so far or produce so great effects, as when its virtues are extracted by water, and the water then applied, either very dilute by irrigation, or by the watering-cart or hand-sprinkler, to growing plants.

Selecting a Cow.

A model useful dairy cow may be known at a glance by an expert. She has a fine, long head, broad between the eyes, and a thin, wide muzzle; the eyes are large, and of a mild expression; the neck is thin and long; the ears are thin and covered within with a deep yellow skin: the forequarters are light and thin, and the whole body has much the shape of a wedge, increasing in size to the rear; the legs are thin with fine bone; the belly is large and deep, with great capacity for food; the back is broad and straight, and the ribs are well rounded towards the rear; the bones of the rump are wide apart; the tail is long and thin; the thighs are thin and are set widely apart; the udder is large and full, especially behind; the teats are of good size, and set far apart upon a broad, level udder, and the milk-vein, so-called, which is the large vein leading from the udder and passing into the abdomen, and which is an indication of the amount of blood circulating through the milk glands, and contributing to the milk secretion, should be full and tortuous in its short course. A fine horn, a deep, yellow skin, and a general elegance of form, without any heaviness or beefiness in any part, are also important indications of good quality in a cow for the dairy.

When to Pick Fruit.

When fruits are mature, they make preparation for falling, just as mature leaves do. A distinct line is formed upon the stem of the fruit, in preparation for the separation. When the apple or pear is mature, it will separate from the tree without any pulling; mere lifting the fruit from its hanging position to a horizontal one, will cause the separation from the tree to take place at once. A little observation will teach when the fruit is ready to be gathered. At this time, the fruit having made its growth, derives nothing more from the tree. After the fruit is full-grown, its next step is towards decay. Decay in early kinds comes in a few days or weeks. In the late sorts it requires several months, but whether early or late, there is a stage in this progress from maturity to decay, when the fruit best suits our purpose, and we say, that is "ripe," or "mellow," or "in eating." This time in early kinds comes very quickly, and other varieties do not assume it before spring. Early kinds come "into eating condition" so soon, that they will bear but little transportation, hence are suited only to near markets. But these vary greatly, and there are from very early and autumn ripening kinds, to the very latest. The fruit-grower should be a careful observer of these points. The best fruit may be spoiled or materially depreciated in value by careless picking and handling. Properly constructed cold storage houses will do much towards keeping fruit in good condition, but unless the fruit is picked at the right time, it cannot be kept profitably even in the best fruit house.

Jersey Cattle.

The Jersey breed has taken a very prominent position in the dairy during the past ten or twelve years. Previously it was the fashionable cow of the rich amateur farmer, who could afford to pay hundreds of dollars for one of these elegant animals as an ornament to his lawn and well-kept pasture, and for the supply of cream and butter for his domestic use. Gradually it became the fashion for these wealthy persons to establish fancy dairies, and to make the choicest quality of butter, which was put up in attractive forms, for sale to consumers who could well afford to pay a dollar per pound for a product, which was certainly known to be clear, pure, and of the most perfect flavor and appearance. It was a new departure in dairying, and has had a most beneficial influence in compelling the makers of butter to follow the example set in this way, or in inducing them to do so, in the hope of securing higher prices for their product. A wholly new business, commonly known as fancy butter making, has sprung up, and this has led to the expensive introduction of winter dairying and a large variety of improved apparatus. It is a new instance of the improvement in agricultural methods which has been brought about by the use of improved stock; and just as the Ayrshire breed in Scotland, or the Dutch breed in Holland, induced a remarkable change for the better in the pastures and in the culture of the soil, as well as in the farm buildings; and by reflection, as it were, on the farmers themselves; so the Jersey cow has revolutionized the butter dairy, and has improved it more in the past ten years than every other influence had done from the beginning up to that time.

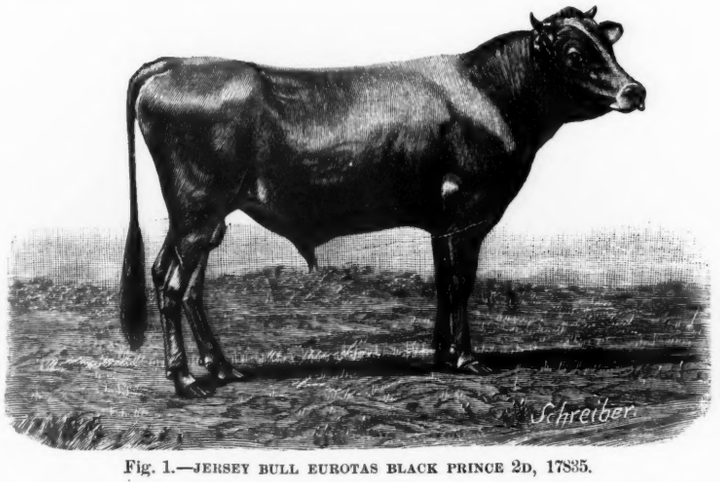


Fig. 1.—JERSEY BULL EUROTAS BLACK PRINCE 2D, 17835.

The Jersey cow, sometimes wrongly called Alderney, is native to the island of Jersey, the largest of the group known as the Channel Islands, which are situated near the coast of France in the English Channel. These islands are Jersey, Guernsey, Alderney, and Sark, the two last being mere islets. The three first mentioned are noted each for a special breed of cattle, much alike in character, but yet sufficiently different to be distinct; the chief characteristic in all of them being remarkable elegance in form, color, and exceeding richness of the milk in butter fats.

The island of Jersey contains more cows than any other equally small piece of the earth's surface, viz., about three hundred square miles; and these cows are more highly valued than those of any other breed, averaging probably three or four hundred dollars each. So many have been imported into the United States that there are more cows of the breed here now than there are in Jersey, viz., about ten thousand, while the half breeds or grades, which are almost as valuable as the pure breed, number perhaps one hundred thousand or more; at least they are so numerous as to be seen on almost every well managed butter dairy farm in the special dairy districts.

Several State herd records are in process of establishment for the pure-bred Jersey cattle, because the American Jersey Herd Book is too cumbrous for convenience, from the large number of entries which have been made in it. No other cow in existence has been so highly cherished and cultivated as the Jersey, and some of them have made the most extraordinary records as butter producers.

The Jersey cattle are of medium size, very graceful in figure, having slender limbs, a thin neck, a fine head, with broad forehead, dished face, large black eyes, a gentle expression, fine, small, curved horns, usually black in color, and setting forward over the forehead. The fore quarters are light, the abdomen deep and large, the hind quarters large, the back broad, the thighs thin and set well apart—giving room for a broad udder, which has a loose skin hanging far up behind, and giving great capacity for holding milk; the milk vein is large and spreads well at its entrance into the front of the udder; the teats are usually large and squarely placed on the udder; the tail is long and slender; the whole form partakes of a wedge shape, and is well balanced and pleasing.

This description may be taken as applying to any good cow; and when a yellow skin, fine coat, yellow ears, and a mellow, soft feeling under the skin are added, the whole indicate a cow which may be expected to excel both for milk and butter.

The color of a Jersey varies from a light fawn mixed with white in patches, to a darker yellowish fawn, or a mouse color, with a black muzzle and an orange colored ring around it. The tongue is also black in many of them. When this is the case, the eyes, horns, switch, and hoofs are also black, making with the tongue and muzzle the "full black points," which are considered by some Jersey breeders the *sine qua non* of excellent animals of this breed. The dairyman, or the owner of a family cow, will scarcely give much weight to these points, except for appearance, and then only when they are accompanied by the best milking character.

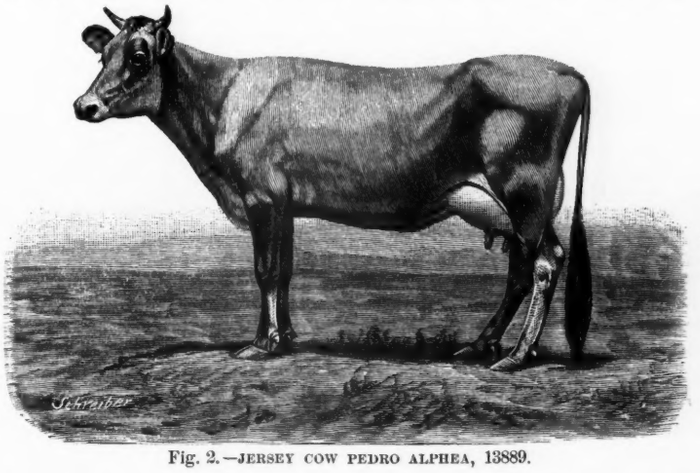


Fig. 2.—JERSEY COW PEDRO ALPHEA, 13889.

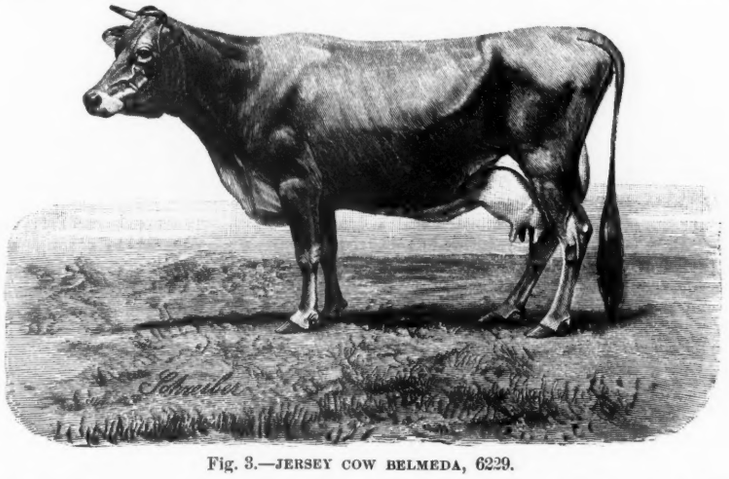


Fig. 3.—JERSEY COW BELMEDA, 6229.

Our illustrations herewith represent three noted Jerseys from the herd of George & H. B. Cromwell, on Staten Island, N. Y. Eurotas Black Prince 2d, 17835, figure 1, was awarded the first prize as the best Jersey bull, one year old and under two, at the New York Dairy Show. His sire is Eurotas Black Prince, 14384, to which the young bull bears a striking resemblance. His dam is Pedro Alphea, 13889, shown in figure 2. The cow Belmeda, 6229, figure 3, has given 9,000 pounds of milk since her last calf on May 21st, 1886, to May 9th, 1887, the day she was brought to the Dairy show. Her highest butter yield was in August, 1886, when during the week ending August 15th, she gave 289 pounds ten ounces of milk, which yielded twenty pounds four ounces of butter, salted one ounce to the pound. It is such records as these that have brought the Jerseys into prominence as dairy cattle.

History of the Cotton Plant.

PROF. J. S. NEWMAN, ALABAMA.

The cotton plant is a child of the sun. Its natural habitation is in the tropical regions of Asia, Africa, and America, but it has been acclimated and successfully cultivated as far north as the thirty-sixth degree of north latitude. Its cultivation covers a very large portion of our globe. In the Eastern Hemisphere the range of its cultivation extends from Southern Europe on the north, to the Cape of Good Hope on the south. In the Western Hemisphere from Virginia to Southern Brazil. It has been most successfully cultivated, however, between the thirtieth and thirty-fifth degrees north latitude. Humboldt found it growing in the Andes, at an elevation of nine thousand feet, and in Mexico at five thousand five hundred feet. Boyle reports it cultivated at an elevation of four thousand feet in the Himalaya. Such elevations, however, are not favorable to its best development. Botanically, cotton belongs to the natural order *Malvaceæ*, genus *Gossypium*. Botanists differ as to its proper classification into species; some enumerating as many as ten species, others seven, and others only three as necessary to a clear discrimination between the distinctive characteristics recognisable after making due allowance for differences resulting from soil and climatic influences. We prefer, for our purposes, to adopt the latter, supported by such distinguished authority as Prof. Asa Gray. These are:

1. *Gossypium herbaceum*, common upland cotton, leaves with five short and roundish lobes, petals pale yellow or white, turning rose-color, purple at base, stigmas three to five, capsule three to five-celled, many seeded, and surrounded by a tomentose wool. When ripe the capsules (bolls) spring open by three to five valves, exposing the cotton, which issues elastically from the capsule after it has burst open.

2. *G. Barbadense*, Barbadoes or Sea-Island Cotton; leaves with five longer lance-ovate and taper-pointed lobes; petals yellow, capsules more pointed than those of *herbaceum*, wool not adhering to the seed; fiber fine, long and silky, with slight cream color.

3. *G. arboreum*. Tree cotton, not now cultivated for its fiber. This latter is also known as *G. religiosum* from the fact that it was held sacred by the Hindus. It was grown about the temples in India and supplied the material for the sacredotal tripartite thread of the Brahmins, the emblem of their trinity. The plant has dark green leaves, bears handsome red-purple blossoms, and produces silky cotton in small quantites. Attempts have been made by hybridizing this with the more productive species to increase its yield, but without success. Its product is unknown to commerce.

The *Barbadense* is successfully and profitably grown only under the influence of salt atmosphere and, consequently, its cultivation is confined to the coast and islands of the sea, whence its name Sea-Island Cotton. On account of its silky fineness and length of staple, it commands a price which justifies its cultivation, notwithstanding the fact that it produces not more than half the yield of lint obtained from the Upland or *herbaceum*, which furnishes almost the entire commercial supply for the spindles and looms of the world.

The history of the cotton plant antedates in its beginnings the commercial annals of the human family. India seems to have been the most ancient cotton-growing country. For five centuries before the Christian era her inhabitants were clothed in cotton goods of domestic manufacture from the fiber grown upon her own soil by her own crude methods. It is said that "more than two thousand years before Europe or England had conceived the idea of applying modern industry to the manufacture of cotton, India had matured a system of hand-spinning, weaving, and dyeing, which, during that vast period, received no recorded improvement. The people, though remarkable for their intelligence whilst Europe was in a state of barbarism, made no approximation to the mechanical operations of modern times, nor was the cultivation of cotton either improved or considerably extended."

Notwithstanding the proximity of China to India, it was not until the eleventh century that the cotton plant became an object of common culture in China. The first mention made of cotton in the records was two hundred years before the Christian era. From that time down to the seventh century it is mentioned not as an object of industry, but one of interest and curiosity; an occupant of the flower garden, the beauty of its flowers being celebrated in poetry. It is recorded in their annals as a circumstance worthy of note, that the Emperor Ou-ti had a robe of cotton when he ascended the throne in 502. In the eleventh century field culture of cotton commenced in China, but owing to the opposition of the people, especially those engaged in growing and manufacturing wool and flax, it was not until 1368 that the cultivation and manufacture of cotton were well established.

Central and South America, and the West Indies, grew and manufactured cotton long before their discovery by Columbus, who found the plant under cultivation, and the people using fabrics made from the staple. At the conquest of Mexico by Cortes, in 1519, he found that the clothing of the Mexicans consisted principally of cotton goods; the natives of Yucatan presented him with cotton garments and cloths for coverings for his huts, while Montezuma presented him with "curtains, coverlets, and robes of cotton, fine as silk, of rich and various dyes, interwoven with feather work, that rivaled the delicacy of painting." The plant was successfully cultivated in Peru in the time of the Incas, in 1532. Specimens were also found in the ancient Peruvian tombs, and taken to England at an early date for exhibition.

Egypt seems not to have either cultivated cotton or used its fabrics at a very early date, since the cloths in which the mummies were enveloped were of flax, instead of cotton. Indeed it appears that those nations which were early celebrated for their manufacture of fine linen, were slow to substitute the cotton for the flax.

Herodotus mentions cotton fabrics 450 B. C., and speaks of trees in India, "bearing as their fruit, fleeces more delicate and beautiful than those of sheep." The cotton fabrics of the Hindoos have been excelled in firmness and excellence only by the productions of the most perfect machines of modern times. The city of Calicut, on the western coast, gave its name to the fabric known as calico. Tavernice describes some of their goods as "so fine that you could hardly feel them in your hand, and the thread, when spun, is hardly discernible."

The famous muslins of Dacca have been, on account of their fineness, designated as "webs of woven wind." It is said that muslins made in Bengal are so fine that "when spread upon the grass and covered with dew they are not discernible."

Spain was first of the European States to grow cotton. It was introduced here by the Moors in the tenth century. The first cotton was planted in the United States in 1621. "Carroll's Historical Collections of South Carolina" mention the growth of the cotton plant in that province in 1666. In 1736 it was planted in gardens in Talbot county, Maryland, latitude thirty-nine north. At the commencement of the revolutionary war, Gen. Delagall was said to have had thirty acres planted in cotton near Savannah, Georgia. It is stated that in 1748, among the exports of Charleston, S. C., were seven bags of cotton wool, valued at three pounds eleven shillings and five pence a bag. Another small shipment was made in 1754, and in 1770 three more, amounting to ten bales. In 1784, eight bales shipped to England were seized on the ground that so much cotton could not be produced in the United States. The first Sea Island cotton was grown on the coast of Georgia in 1786, and its exportation commenced in 1788, by Alexander Bissel of St. Simons Island. In 1791 the cotton crop of the United States was two million pounds, of which three-fourths was grown in South Carolina and one-fourth in Georgia. Ten years later, 1801, forty-eight million pounds were produced—twenty million pounds of which was exported.

The United States have long since excelled all other countries in the quantity and quality of the cotton produced. India ranks next in importance in its supply of cotton to the United States, but its fiber is far inferior to the American. The other cotton producing countries worthy of mention are the East Indies, Egypt, Brazil, the West Indies and Guinea.

A Mistake in Gardening.

If every farm has not a well-managed vegetable garden, it is not that we have not pleaded for and advocated it as often as seemed proper. Nothing so adds to the comforts of farm life, so tends to make young people contented, and to "keep boys (and girls too), on the farm," as an abundance of choice vegetables, and small fruits also, upon the home table. Those who have heeded our frequent entreaty, and set aside a plot for a garden, generally fail to get from it all that it can yield. Those who "make garden" in spring, and sow all their seeds at that time, and enjoy their products as they come along in due time, make a mistake. In very few family gardens on the farm or elsewhere, is there any provision made for succession. Now is the time to remedy this omission. Sow early kinds of sweet corn every week until the middle of the month. If there is likely to be frost before all is eaten, dry the surplus. So with bush beans, a crop for present use and for pickling—and they make excellent pickles (especially the "Refugee,") if pickled while tender. Sow, late in the month, early beets, especially the "Egyptian." The thinnings make a grand substitute for spinach, and the well-grown beets are most acceptable at all times. Peas, planted late, are usually spoiled by mildew, but if there is a moist spot in the garden, we should risk a sowing of "American Wonder," which, indeed is a "wonder," in point of quality. Provision should be made for next spring, by sowing next month (September), between the first and middle of the month, an abundance of spinach seed. It will afford abundant thinnings for use before frost, and if protected (far inland) by a scattering of salt or bog hay, will yield an abundance of spinach in early spring. Sow also at the same time the variety of Borecole or Kale, known as "German sprouts," or "Greens," for use in spring. Succession crops of lettuce, cress and radishes, may be sown when hot weather is over. Indeed, by sowing crops in early fall, the pleasure derived from the garden may be easily doubled.

August Trimming of Hedges.

The expense of a hedge fence is comprised in the trimming. This expense is increased by delay. It is less labor to trim a hedge three times during the year, when the branches are small and soft, than once when the branches have made a full seasons' growth. If the hedge is trimmed once in June and again in August, it will be kept in good shape, and the labor will be less than if the trimming is put off until spring. In August the branches can be cut with shears or a sharp corn knife. The foliage on them will aid in their burning, when they have dried a few days in the sun. The thorns are not so hard as in the spring. The brush will be less, and on account of their pliability and greater weight, will pack into the heap much better. If trimmed in August, the hedge will not make any considerable growth during the fall. August trimming does not injure the hedge, rather helps it, as it tends to ripen the wood, preventing a late autumn growth to be injured by the winter. The loss of sap is less than when the trimming is done in the early spring, as then the wounds are larger, and do not heal before the sap flows. Do not neglect to burn the brush as soon as it has dried sufficiently. If allowed to remain on the ground, it will harbor mice and other vermin. Trim the hedge in August and burn the brush.

Care of Young Turkeys.

The loss among young turkeys every season is very large. In fact, few farmers raise more than one-third of the young turkeys hatched, which entails quite a loss when the season's work is finished, as it requires but little extra labor to care for a larger number, until they are past the critical period. The young turkey is very tender in its first stages, but is very hardy when matured. Young turkeys cannot be fed like chicks, as they are as dainty in the choice of their food as young wild birds, and a mistake of a single day may destroy them all. In feeding them it must be kept in view that they make very rapid growth of feathers, and food well adapted for the production of feathers should always be fed. They should have meat every day, but at times they will refuse it. They seem to have a preference for food of a white color, and are very fond of milk and curds. Stale bread soaked in milk, and also plenty of curds, is the best food for them at first. Some advise feeding hard-boiled eggs, but such food usually results in varrous bowel diseases. Onions, chopped very fine, with the tops included, are highly relished, but little troughs of wheat and chopped meat should be placed before them every day, in order to induce them to begin on such food as soon as possible.

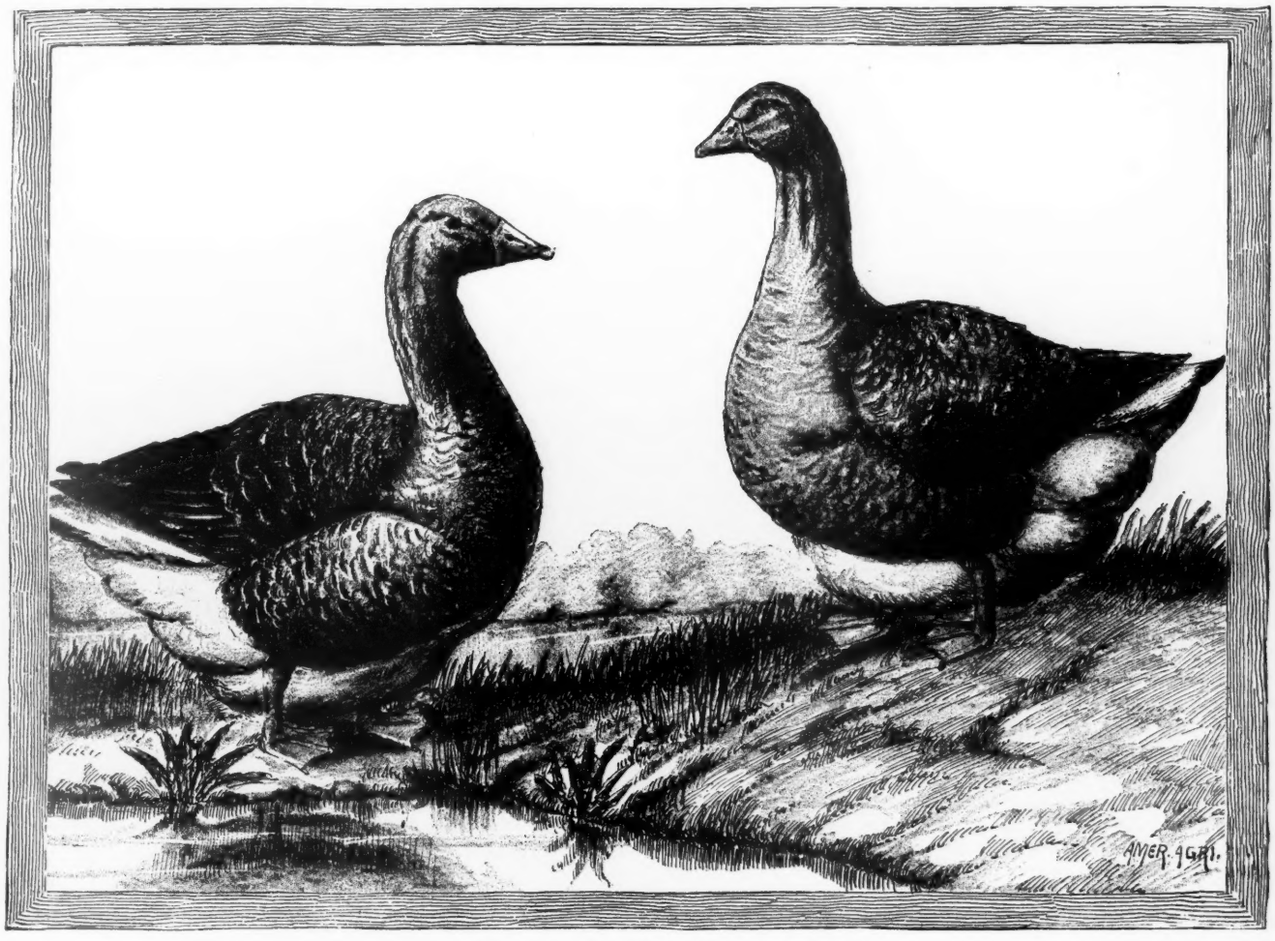
Dampness is fatal to young turkeys. They should never be allowed to go in the damp grass, or get wet. The main cause of loss is lice, which come from the hens, and right here we will say that nearly all kinds of adult fowls have lice, even when seemingly free from the pests. Not only the little red mites attack young turkeys, but the large gray body lice soon begin on them. As young turkeys die very suddenly when attacked by lice, it is best not to wait until they begin to droop before using precautions, for then it will be too late in a majority of cases, but search them every morning. Should a single louse be seen, grease the heads, necks and vents with lard (using the smallest possible quantity), and dust the bodies well with Persian insect powder. Do the same with the hen.

The general supposition that young turkeys must have free range, has not always proved true. We have a small lot, hatched in an incubator, and being raised in a brooder, that have kept remarkably healthy, not a single one dying, though they are more troublesome to feed than when they are with the hen. The experiment has demonstrated that clean, warm, dry quarters, and careful feeding, with freedom from lice, will enable farmers to raise a larger percentage of the young. True, it entails greater care, but it will pay, as the young turkeys become hardy after "shooting the red." The advice so frequently given to turn the hen and her brood loose, to roam at will, has caused the death of many young ones, but there is no doubt that if they are carefully attended to every three hours during the day, and fed on a variety of food, with clean water, which should be given in a manner so that they can only get their beaks wet, it will not be long before a large flock will be on the farm, and the members of which will then be able to provide for all their necessities.

CHEAPENING ENSILAGE.—During the past few years the methods of ensilaging have been much simplified. The costly and cumbrous stone and cement silo has been abandoned, and a common barn mow, closed tightly with matched boards doubled, with building paper between, and the method of heating the fodder by spontaneous fermentation, have been substituted for the old and more laborious system. The new process also gets rid of the acid, and preserves the fodder in a sweet condition. The heat of the fermentation destroys the germs which produce acidity, and, to some extent, improves the fodder as to its digestibility.

Toulouse Geese.

A large amount of profitless discussion has been wasted on the origin of the name of Toulouse geese. There seems to be no evidence to connect their origin with the French city, whose name they bear. But it is of little importance to poultry-raisers and farmers. They were first carried from the South of France to England, and afterwards to the United States. Forty-eight pounds is the standard maximum weight, but they have been forced to weigh as high as sixty pounds. Under ordinary circumstances though, eighteen to twenty-five pounds is the common average. They are stately fowls, with massive bodies, erect carriage, and fine, rich colors. But their most striking characteristic is the abdominal pouch, or loose fold of skin beneath, which comes nearly to the ground. The plumage is of various tints of ash-gray, brown and white, the head, throat, lesser wing-coverts, and some other parts, being light-gray, while parts of the neck, the back, upper wing-coverts, breast, thighs, tail-feathers, etc., are dark-gray, shaded with rich brown. The under part of the body and the tail-coverts are white. The legs are deep orange. They are fairly prolific, and under favorable conditions raise two broods each year. The goslings grow rapidly, and mature early. With good care and generous feeding, the young geese are made to weigh twenty pounds the first winter. When well fattened, they are very good for the table. They should have good pasturage, with oatmeal, milk, etc., while young, and no heating foods should be given, until they are feathered.



A PAIR OF TOULOUSE GEESE.

Drawn and Engraved for the American Agriculturist.

How to Keep the Family Horse.

ISAAC H. FICKEL, OHIO.

The horse, according to tradition and history, is found to have been very early associated with man as a domestic animal. He has been an important factor in bringing the human race to its present state of progress and refinement. Whether in war, commerce, or pleasure, no animal so readily responds to the wants of mankind. The question "How to keep the Family Horse," to obtain the best results; to provide the proper shelter; to understand food elements and their proportions; and the disposal of the manure, are matters of great financial importance to every horse owner.

THE STABLE.

In discussing the various questions connected with the stabling of the horse, it must not be forgotten that we have many climates, and many degrees of aridity and moisture to deal with; and what would be suitable for one place, would not be adapted to other parts of the country.

There are so many excellent plans for stables, adapted to special localities, that it is not necessary to describe any particular ones. Whatever plan has been adopted, there are certain matters to be considered, however, necessary to the health and comfort of the animal. Most important is a dry location. The horse is a native of a dry country, and cannot be kept in health in a damp situation. Coughs, colds, and other ailments are the result of damp stables. These interfere with the use of the horse, irrespective of other reasons, as domestic comfort is greatly dependent on the carriage being always at command. This may be secured in most cases by thorough drainage. Every stable should be kept free from dampness. Hardly less important is it to provide the best means of keeping up a tolerably even temperature in summer and winter, and to furnish sufficient ventilation. The horse requires a constant supply of pure air. Pure air is the source of pure blood and pure blood is the source of health. Too many, in their desire to keep their horse comfortable in cold weather, neglect this important matter. Neither man nor beast can enjoy health while inhaling corruption at every breath. Yet many stables are built with little regard to ventilation. The air in the stable should be constantly changed, without creating a draft upon the horse. The impure air can be carried off by ventilators, which should be placed on the top of every stable. The stable should be well lighted. Light exercises as much influence upon animal as upon vegetable life. Many diseases are much more virulent, and the eye can not retain its full power if deprived of light.

The stable for the horse should be of good size. The narrow dimensions of many of the stalls are a positive cruelty to horses. They are built too narrow to enable the horse to extend his limbs when convenient. He is compelled, when in a recumbent position, to double his limbs up under him, and his legs are thus kept cramped, when they should be completely at rest. Box-stalls permit the animal to choose its position and change it at pleasure. Comfort is essential to health, and it is evident that the animal can not be comfortable when closely tied in a narrow stall. The stalls should be kept clean, and the floor daily sprinkled with some good absorbent, as gypsum, to absorb the foul odors continually arising. Absorbents are not generally used freely enough about stables. Besides having pure air for the animal to breathe, a stable that is stored full of hay and grain ought to be kept well ventilated, and kept clean, that the impurities of the air may not penetrate these. All food should be kept as pure as possible. Cleanliness about the stable is just as important to the health of the horse, as cleanliness about the house is important to the health of the family.

MANURE; ITS STORAGE AND DISPOSAL.

Every thoughtful farmer realizes the importance of saving the manure from all his stock. Yet few give it the care necessary to save it as it should be. The urine is the most valuable part of the excrements of animals (being the main source of nitrogen), yet this is mostly allowed to settle into the soil and be lost. How many of our farmers throw the manure under the eaves of the stable, exposing it to the action of air and water, allowing the water to drain off and the manure to heat, thereby losing the most valuable parts. About all that is left may be regarded as husks—of very little value as a fertilizer. It is these little leaks of the farm, which make farming so unprofitable to many persons. The manure and urine of the horse, if properly saved, form the strongest and most durable of dressings for meadows, and especially is it valuable when the feed contains a large proportion of albuminoids. It is estimated that one-half the cost of these foods is returned in the increased value of the manure. To one residing in a city, possessing a small lot, this saving is hardly of less importance than to the farmer, as well-decomposed stable manure forms one of the best dressings for the lawn.

In the storage of manure there are two dangers to contend with. The first is the leaching, or allowing it to become saturated with water, which drains off; and the second is the loss of the nitrogen by escaping and uniting with hydrogen, forming ammonia, which, being very volatile, is easily carried off. But this gaseous ammonia may be converted into a solid and retained. That is, we can unite it with some other substance that will hold it, and this nitrogen is the most costly element in manure, as it enters into the composition of all kinds of vegetable matter. Upon how to overcome these losses then, will depend the future value of the manure.

To prevent leaching, it is necessary to have the receptacle for manure so that it cannot become saturated and the water drain off. If there be a manure cellar, this is easily avoided; but if it has to be stored outside, and exposed to the action of the elements, it is not so easily saved. If stored outside, the receptacle for it should be lower than the surrounding surface, so that the water cannot drain off; it should be neatly piled in a compact, flattened heap.

The escape of nitrogen may be prevented by using absorbents, such as plaster (gypsum), kainit (which are the best materials that can be used to prevent the loss of ammonia,) or, when these are lacking, road dust is particularly valuable. By this means the ammonia will unite with the organic acids, and form soluble but not volatile compounds, thus forming a compound rich in nitrogen, lime, and potash. Where straw is largely grown, it should be provided in abundance for bedding, and with a free use of gypsum or other absorbents, most of the urine will be saved. The manure pile should not be allowed to become dry, but should have a few barrels of water added occasionally, and be frequently stirred with a fork. Decomposition is hastened if hogs are permitted to root it over. The manure should be drawn to those fields upon which plants are growing, or soon will have them, to absorb it as it dissolves. Thus by a little care and attention, thousands of dollars will be saved annually to farmers, who are now paying high prices for the identical elements in commercial fertilizers, which they are permitting to go to loss in their own barnyards.

FEEDING.

The study of the subject of food elements, and their relation to the animal system has been greatly neglected. Of late years science has been doing much in this line of work, but there is a great deal to be done yet. Although the animal body is so complex in structure, yet chemistry has divided it in a general way into nitrogenous, non-nitrogenous, and mineral matters. Since these substances are continually being destroyed in the body in forming materials for growth, in generating heat, and in producing force, it is necessary that the animal should receive substances similar to those destroyed, so that these may be assimilated by the tissues and fluids of the body to replace those lost and to enable the vital actions to continue.

The object of feeding is to supply the animal with the various elements which enter into its composition, and since the nitrogenous (albuminoids, or protein) and non-nitrogenous (carbohydrates), substances vary only in narrow limits, and since the rate at which each is destroyed in the body is also fixed, it follows that the food which the animal receives should also contain these nutrients in the right proportion. The food given to an animal may contain all the nutrients named, but it may not contain them in the right proportion to supply the animal organism. Some are rich in albuminoids, while others are composed largely of carbohydrates. Hence, in an economical point of view, we should combine these foods to form a mixture in the right proportion to satisfy the needs of the animal system. A large part of the animal body is composed of albuminoids and as it is impossible for the animal system to convert carbohydrates into albuminoids, the sole source is from those plants containing the albuminoids. The Germans estimate a pound of digestible albuminoids to cost on an average five times as much as a pound of digestible carbohydrates; it is readily seen that economy requires the least proportion of the former consistent with perfect nutrition. The quantity of carbohydrates which a horse requires, depends upon the latitude and the season. As carbon and hydrogen are the heat-producing elements, it follows that the colder the climate the greater proportion of carbohydrates is needed. We have mentioned the importance of the albuminoids in animal economy. It is evident then, that the proportion of albuminoids which the feed contains, is an important element in determining its value; and those foods, which contain them in the largest quantity are, other things being equal, the most valuable, as these are the most expensive ingredients to produce.

Relatively to size, the horse has a smaller stomach than any other of our domestic animals. This makes it necessary that he must feed frequently, digest promptly, and have a rich material in a small bulk, thus adapting him especially to perform rapid work. In a state of nature he is under no necessity of eating too much at any one time, but replenishes the stomach lightly and at frequent intervals throughout the day. There is no overloading, nor overtasking the organ, and no extreme exertion upon a full stomach, which so often takes place in the domesticated condition. Even in domestication, a horse will maintain excellent health on the natural grasses, fresh or made into hay; but when he is placed under the saddle or in harness, and subjected to work, we take him from his natural state, and the same feeding will not longer meet the demands of the system.

In regard to the kinds of feeding stuffs to be used, it must be apparent that, with the many different climates and surroundings in this extensive country, what would be adapted to one section, would not suit in other parts. Yet there are three general points to be considered, in order to develop a more rational and more economical system of feeding. First. How much of each of the essential groups of food constituents is contained in the food? Second: How much of each of these essential food constituents is digestible under existing circumstances, and thus directly available to the animal? Third: How much of the three essential food constituents does the animal require to secure the best results? Tables have been prepared, at great labor and expense, for our benefit. The one given below shows the composition and digestibility of the foods usually given to horses.

	COMPOSITION.			DIGESTIBILITY.		
	Protein.	*Fat.*	*Nitrogen, free extract.*	*Protein.*	*Fat.*	*Nitrogen, free extract.*
Pasture grass	3.	.8	13.1	75	66	79
Timothy hay	6.2	1.7	45.8	62	20	56
Oat straw	2.3	1.	26.4	38	30	42
Corn fodder	3.	1.1	37.9			
Oats (grain)	9.8	4.9	58.	87	78	77
Corn (Dent)	10.5	4.8	70.2	78	63	94
Wheat bran	14.5	3.5	53.6	70	90	75

By reference to this table, it will be seen that the albuminoids (protein) in the hay and grasses

are little more than half the amount present in the same weight of grain. Thus the grain furnishes nearly twice the amount of flesh-forming aliment that is supplied in hay; from which it follows that by its use we can supply the material necessary for the maintenance of the animal without subjecting the stomach to a great distension with food at any one time. Again, it will be observed that the grains contain about one-half more respiratory food in a given bulk than hay and grass, and not more than one-fourth the amount of indigestible woody fibre, so that in the grains we have a doubly nutritious food with incomparably less superfluous matter, and capable of more prompt and thorough digestion. Thus the stomach is soon cleared, and the animal is fit for use sooner after a meal. Hence, the faster and severer the work which a horse is expected to perform, the sounder and more nutritious should be his food. His oats should be increased and hay diminished. Then the movements of the body and limbs are not impaired, as when fed on bulky food.

By careful experiments, it has been found a ration containing twelve to thirteen pounds of digestible nutrients, and having a nutritive ratio of one to seven, (*i. e.* one pound of albuminoids to seven of carbohydrates, which includes the fat and nitrogen free extract), is sufficient for a horse weighing twelve hundred pounds, and performing light work, such as a family horse would be expected to do. Of this amount there should be digestible substances:

Protein	1.8 pounds.
Carbohydrates	11.2 "
Fat	.6 "

The question, From what sources are we to obtain these? brings us to the consideration of the most common foods of the horse.

Pasture Grass.—Though no person should allow the family horse to depend upon grass alone, yet, owing to its being his natural food, he should not be deprived of its use entirely. When in use, however, owing to its loosening effects upon the bowels, it should not be fed to him; but when not in use, grass with a portion of good hay and grain, form an excellent ration.

Timothy.—This is probably the most valuable of all grasses for hay. It is extensively cultivated, contains a large amount of nutritive matter, and forms one of the best foods for horses, if cut in the bloom, and properly cured.

Oat Straw, if cut at the proper time, forms a feeding stuff not to be despised. Good straw is most decidedly better than poor hay. Its chief value lies in its non-nitrogenous matter, of which it furnishes a cheap supply, and in combination with feeding stuffs which can supply its deficiency in protein, it forms a valuable fodder.

Corn Fodder is extensively used in many parts of the country, and though forming a good substitute for hay, it is not as nutritious as good Timothy hay, and from the large amount of stalks, it is not nearly as convenient to feed as hay. However, when grown by the owner, it may be used with advantage during the winter season. Of the grains,

Oats seem to be especially adapted to the horse. All grains have high nutritive values, with but little waste; as a consequence their digestibility is high, and they contain a large amount of nutriment in a small bulk.

Corn is largely fed to horses, but from its tendency to produce fat, it is not to be recommended as equal to oats. Corn may be fed more freely in winter, because it is an excellent heat supporter, but at other times it should be liberally mixed with oats, or discarded entirely.

Wheat Bran, it will be seen from the table of analyses, is rich in protein. That it can be fed with profit to our driving horses occasionally, there can be no doubt. When fed in connection with corn or corn meal, its effects are very soon noticed in the appearance of the animal.

Horses, like man, desire a variety of food, and the system tires of a steady diet. There should be a change of food occasionally. Good Timothy hay, cut at the right time and properly cured, and oats, then, are the foods which will furnish the best results, all things considered, whether grown by the owner or purchased. Supply and demand may alter the cost of these, when other foods may be substituted, and their values computed from the table of nutritive values. Cutting and steaming food for stock has many advantages, and certainly pays. Whether it will be profitable where only one horse is kept, is a question which must be left to the judgment of the owner. Feed should be given regularly. The human stomach bears hunger better than that of the horse. He should always be allowed plenty of time to eat.

The stomach is in no condition to receive food immediately after severe exertion. At this time it has not nervous force to digest the food, and often flatulent colic is caused by too hurried feeding. Neither should he be used directly after eating, but a short time should be given it to partially digest its food. Neglect of this often causes staggers. Always feed carefully. No scantiness; no overfeeding, especially of the albuminoids or grain foods.

Good, pure water of moderate temperature is of prime importance. It requires the combustion of tissue to warm water to the temperature of the body. Hence, it is important that the water should not be too cold in winter. Owing to the small size of the horse's stomach, he should not be allowed too much water at any one time, especially when warm and after a feed of grain. The old saying "that a horse has more sense than a man," and that he will not drink too much, is a great mistake. He will drink too much when heated and the stomach is empty; he will also drink too much when the first heat caused by digestion commences. From a little at a time and often no danger is likely to result.

The use of a certain amount of common salt is necessary in many ways to the animal system. This need is increased since many of our domestic animals are stall-fed.

CARE AND MANAGEMENT.

In many respects the horse's constitution is as tender as a man's. Cold storms exhaust his vitality, and in proportion as this exhaustion takes place, an increased consumption of heat-producing food occurs. Hence, during cold and stormy weather, he should be kept in a comfortable stable. In seasons of extreme heat, the horse needs protection from the direct rays of the sun as much as he needs protection from winter storms. Medical men say that men and horses are the only animals that sweat. They perspire through the skin, the pores of which become opened and enlarged, and it is while in this condition that both are exceedingly liable to be injured by overheating.

We are all somewhat familiar with the care that is given to trotting horses—and what is the object of all this care? The purpose is the preservation of health and perfect condition. It is not necessary to give the family horse as much attention as the trotter receives, but it ought to be sufficient to give the animal good treatment, and to insure its comfort to the utmost practical limit. He should be well groomed, for the curry-comb is to the horse, what a bath is to man. The prime importance of grooming him thoroughly rests upon the fact, that his health is essentially dependent upon the cleanliness of his hide. The glands must be kept open to allow the dead matters to be cast out of the body. When allowed to do their work, they throw off more deleterious matter than the lungs or kidneys. The curry-comb should be used lightly, however, as it is a source of pain when used roughly. It should be followed by the brush and cloth, to remove the dust that will escape the comb.

Attention to the care of the feet and legs is of great importance. They require more care than the body, and are more liable to injury. When a horse has been driven during the day, he should not be allowed to spend the night without being cleaned, and his limbs rubbed down. This stimulates the circulation, and opens the pores of the skin.

Kindness with the family horse is of the utmost importance. Always cultivate an acquaintance, and be on social and friendly terms with him. If he is tired and worn out, it is astonishing, how these little attentions will encourage and cheer him up. When not in use, he should be given a reasonable amount of daily exercise. No animal will do well without exercise. It promotes a good action of their limbs, and assists digestion. The harness should be made to fit, thus avoiding chafes and bruises. In cold weather the lips and tongue of the horse may be made very sore by contact with the frozen bit. The bit should always be warmed before being placed in the horse's mouth. Flies are very annoying to horses, and the use of the net, or some preparation that will keep the flies away, is well repaid.

Horses in a state of nature do not require any protection for the hoof. But, in connection with climate and artificial roads, domestication alters more or less the conditions, on which the horse depends for the horn's integrity as an efficient protection to the lining and extremely sensitive parts it encloses. A horse would not be able to travel long on our artificial roads, without some protection to the hoof. This art is not practised by as skillful workmen, as necessity demands. Shoes allowed to remain on too long, are often the source of serious foot diseases.

Care in driving is of the greatest importance. How often do we see an animal driven until wet with perspiration, and dotted with foam, standing without blanket or protection of any kind from the cold northern winds. When in such condition, he evidently suffers intensely; besides the danger of contracting diseases, from which he will never recover. If any law on our statute book should be more rigidly enforced, it is the one against fast driving. A case of a family horse—a noble animal—has just come to the writer's notice. The animal taken with kidney disease, the veterinarian said caused by over-driving, ending in three days in lockjaw and death. When in use, blankets should always be provided in cold weather, so that they will dry without chilling. Protect them from drafts when warm, and either rub down, or let them stand in a stable, where cold air can not strike them.

The family horse is especially worthy of the best of care, for no other domestic animal so readily responds to kind treatment. "A righteous man regardeth the life of his beast."

Perennial Italian Ray Grass.

This Ray Grass is also called "Rye Grass," but improperly, as that is an annual. The Ray Grass (*Lolium perenne*) has long been cultivated in England, and is highly esteemed there, more especially because it ripens at the same time with clover, and with the exception of orchard grass, is the most suitable to be cut with it for hay. Both this grass and clover ought to be cut just as they come into full bloom. If allowed to stand until the blossoms are closed and the seeds begin to form, they shed profusely as the hay is handled, causing quite a loss to its value. Moreover, the stalks and leaves become over hard and dry, and the latter are more or less rubbed off, and also lost.

This Ray Grass has been cultivated to some extent in our Eastern States for about fifty years, but as pure Timothy is preferred by horsemen for hay, that keeps the preference, although when clover is grown with it, this ripens so much the earliest as to lose something of its nutriment before the Timothy is fit to cut.

Ray Grass is now extending considerably in cultivation in our Western States, and is much liked there, and also in the Pacific States. It comes forward in the spring two weeks or more earlier than Timothy or Red Top, and it continues to grow later in autumn. Unlike Timothy, it starts up again immediately after being cut for hay, which is another advantage. This early and late growth renders Ray Grass especially worthy of cultivation for pasture, the same as is the case with orchard grass.

More Corn for Fodder Needed.

Fodder corn follows grass in rank as a feeding crop, either green for summer use or preserved as ensilage, or dried and cured for the winter. It is one of the most prolific and nutritious plants when it is properly grown and cultivated. It has yielded from twenty-four to forty tons of green, and five to eight tons of cured fodder. It requires rich land and good cultivation, however, to make this yield, but on poor land, helped by artificial fertilizers, a very profitable yield can be made. In such a case a poor, sandy farm, which was badly run down, produced twenty-four tons of Evergreen Sweet Corn with six hundred pounds of special corn manure to the acre; and twelve tons per acre of Early Narragansett Sweet Corn. It is quite possible to grow both of these crops on the same ground, the same season, for the early corn will be ready for cutting in fifty days from planting, and the later kind planted in July will mature in September; thus giving thirty-six tons of green fodder, or eight of cured fodder per acre. It is this rapid growth which makes this crop so valuable.

Fodder corn has acquired a poor reputation, by reason of the mistaken manner of growing it, viz.: by broadcasting the seed at the rate of two or three bushels per acre, by which the crop is so crowded that it makes a white, watery, rank forage, quite devoid of nutriment, and worth but little more than wood shavings. Cows have been known to reject fodder thus grown, which is a convincing proof of their natural sagacity.

When grown in rows, three feet apart, and with four to six seeds dropped eighteen inches apart, the fodder is entirely different. It is green in color, mature in its growth, full of sweetness; and a large proportion of the stalks will have ears in what is known as the roasting stage, and as the fodder is cured, these may be dried, if the proper precautions are taken in the curing. Over ten thousand ears of sweet corn, fit for market, per acre, have been taken from a crop of Ever-

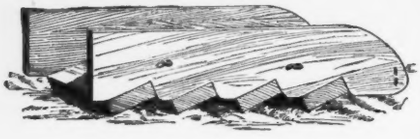


Fig. 1.—CLOD CRUSHER IN OPERATION.

green Sweet Corn, and this product gathered and sold from farms near large cities, is exceedingly valuable, frequently selling for a dollar and a half per one hundred ears; and if late in the season, and of good size, for nearly or quite twice as much. Thus this crop is a very useful one for dairymen, who are near a market for this kind of truck.

The crop is cultivated precisely as field corn is. At the time for cutting, which is when the ears are in the milk, the corn is cut close to the ground in the usual manner, and left for two or three days to wilt. It is then bound in small sheaves of about twenty stalks in each, with bands of rye straw, and is set up in small stacks, and bound securely at the top, the bottom being spread to admit the air. It is thus left until the stalks are quite dry and the ears shrunken; when it is put up in small stacks of about one thousand bundles or less, built around a frame, made like three ladders meeting at the top and spreading at the bottom, by which air is admitted into the center of the stack, and mildew prevented. When fed green, the stalks are cut up in a fodder cutter with the ears, and make a most valuable food for the cows. They are very productive of milk of good quality. Sweet corn ears, in the cooking stage, make excellent food for butter-making cows, and the butter is of fine flavor and quality.

In growing the second crop, the land is plowed as fast as the first one is removed—the swivel plow being the most convenient implement—and is harrowed and planted as soon as a space wide enough to start on is ready. The Acme harrow prepares the plowed ground very quickly and perfectly, and corn planters drop and cover the seed, and mark the rows, at one operation. Thus no time is lost, and the crop comes in rapidly. As soon as the seed is planted, the fertilizer should be sown over the surface and left for the first rain to carry it into the soil.

Useful Clod Crusher.

The accompanying illustrations present different views of a home-made implement to be used as a clod crusher, or for other purposes. L. D. Elder,

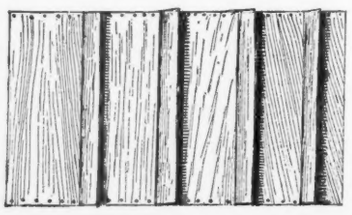


Fig. 2.—BOTTOM OF CLOD CRUSHER.

Dansville, Livingston County, N. Y., furnishes the sketches and description. The runners are of oak plank, two inches thick, six feet long and eight inches wide, each rounded off at one end, and notched on the straight edge, as shown in figure 1. The cross-pieces are of similar material, three feet long and seven inches wide, spiked in place. The outer edges of the cross-pieces are faced with band-iron. A staple with ring is driven from the inside of each runner, near the front, and the chain by which it is drawn is run through the rings. In this form it serves a very good purpose as a clod crusher. If additional weight is desired, large stones may be placed between the runners.

To fit it for use as a sled, it is inverted, and a box of inch boards five feet ten inches long, three feet broad, and nine inches deep, put on. The lower edges of the side-boards are notched to fit the projections of the cross-pieces. Inch boards are nailed across the bottom to close the spaces between the latter, as in figure 2. Staples are driven into the sides of the runners to receive stakes, which hold the box in place. For use in winter a pair of thills are attached by iron straps bolted on, as shown in Fig. 3. When the runners become worn, the bottoms are planed off and strips of oak pinned on. The box may be replaced by a rack, for drawing hay or other bulky stuff.

Hints for Keeping Fowls in Confinement.

When hens seem drooping, give a pill made of sulphur, lard and black pepper till they are better. Keep a horseshoe or a few rusty nails in the water, or boil white-oak bark and cherry-tree bark together. Make a syrup, and, when it is cold, give it in the drinking water twice a week, as a tonic.

Take ground mustard, one tablespoonful, to two quarts of corn-meal, and enough sour milk to mix well. In case of sick fowls feed this three times a week; as a preventive twice a month. It is a grand tonic, and should be used occasionally through the summer season.

Beware of overfeeding. It is *variety* of feed and

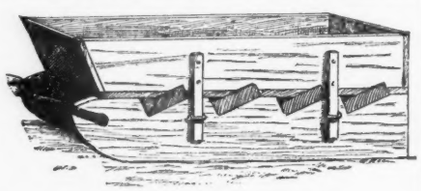


Fig. 3.—CLOD CRUSHER AND SLED.

shell producing articles that bring the best results. Experience will teach how to regulate the quantity.

Pound up broken crockery and glassware in pieces the size of small peas, and put in the gravel box. The fowls will select the hard flints with sharp edges to "grind in their mill."

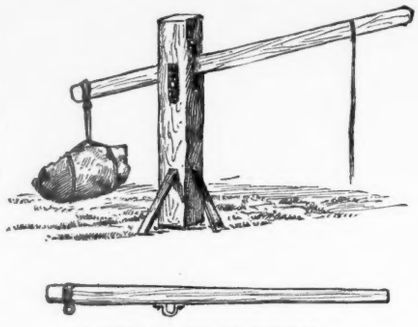
Clean off all the runs in poultry yards as well as the houses. Don't allow fowls on the same ground for months or years without stirring it up. Sweep off, or spade under, the litter that accumulates. If the inclosure is small, spade up a portion each day. If large, plow up the yard frequently, so that the birds can have exercise in hunting in the fresh earth for worms.

It is said a hen will consume a bushel of corn a year. We would be generous and allow five pecks of grain per head, when they are confined to the hen-yard. It requires more feed to keep some breeds than others. The Plymouth Rocks are small eaters, and industrious foragers, and so can be kept with twenty per cent. less expense than some others. Sunflower-seed, fed in small quantities, imparts a beautiful gloss to the plumage. Whether with old or young fowls, give them freedom, cleanliness, proper and sufficient food during the year, and change of male birds every spring.

Always provide a dust box. The best article for the use of fowls is road dust. Gather a barrel full in summer; cover it close and keep for winter use. Or use finely sifted hard-coal ashes with a tablespoonful of sulphur added.

If litter is wanted for the fowls' scratching place in winter, gather the fallen forest leaves and store them away in a dry place. When needed throw a good supply into the hen houses. Scatter broadcast one feed of grain (in the evening) among them and let hens work for their supper. Renew the leaves every week or two, or alternate with straw. Either will be good for the birds. Then it can be removed to the compost heap, or scattered about your small fruits and grapevines.

In these last suggestions there is plenty for the children to do. Let them gather road dust, leaves, etc., in the season, doing something each day to provide for the comfort of the fowls. They will love the work, and take an interest in the business. It will give them needed exercise and pleasure.



LIFTER FOR HEAVY WEIGHTS.

Let each one also possess a brood of fowls, and attend to its wants personally.

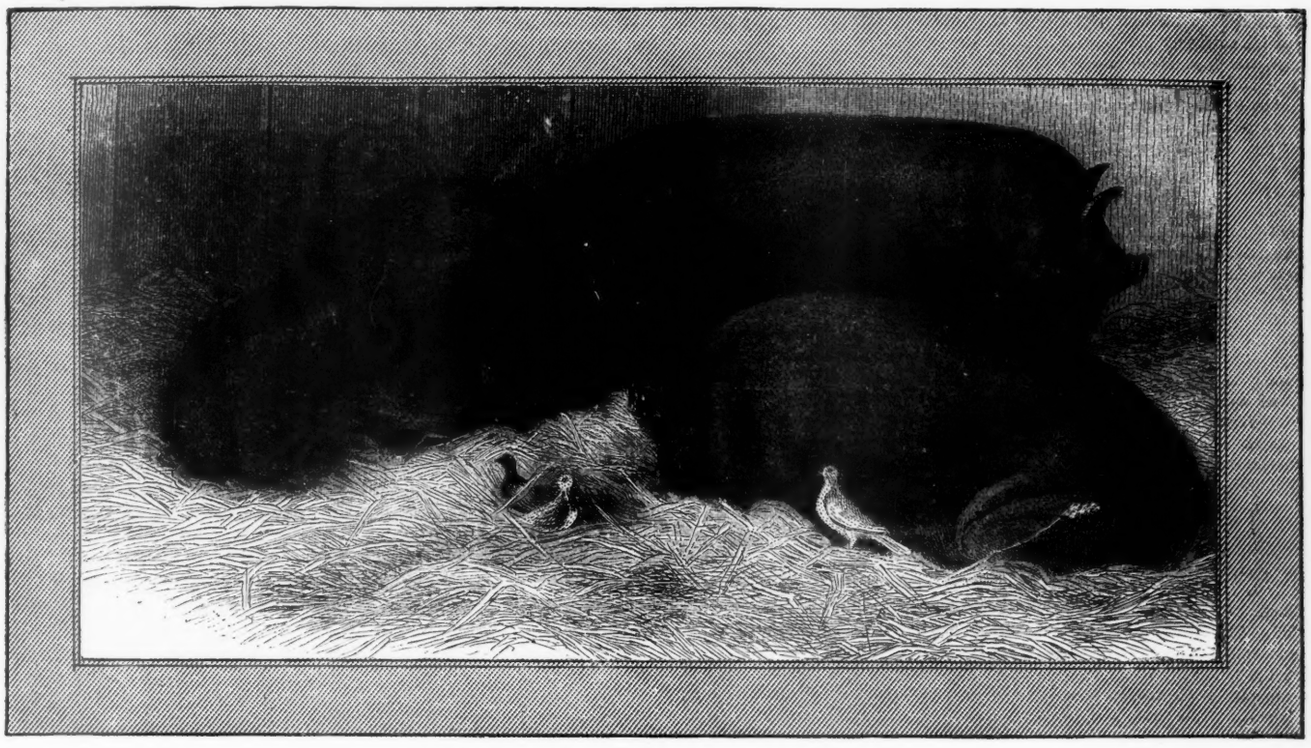
Apparatus for Lifting Heavy Weights.

We give above an illustration of a handy and powerful lifting apparatus, which any farmer can readily make for himself. It is soon put in place, and for lifting large stones into the wagon, is very serviceable. The stone is lifted to a suitable height, held there, and the wagon backed under the stone. The main piece is six inches square, and can be made of pine. The slot in it is made just large enough to receive a stout lever, which swings on a heavy bolt. To prevent the bolt from working into the wood, iron pieces are fastened at each side, through which the bolt passes. Braces are mortiсed in the heavy upright posts, to act as supports. To preserve the strength of the lever intact, instead of boring a hole through it, attach an eye to the under side of the lever, for the bolt to pass through. The lever should be of hard wood, about ten feet long. The weight to be lifted is always attached to the short end of the lever, which gives additional power to the man operating it.

The Swine of Sussex.

The swine of Sussexshire, England, as bred a hundred years ago, were famous for enormous size. In truth, they were gigantic animals, larger than any other swine bred in the British Isles. This was the native race of Sussex, called the Rudgwick, because it reached the acme of renown in the hamlet of Rudgwick, which lies upon the boundary line between Sussex and Surrey. Like all other animals of huge size, the Rudgwicks were slow feeders. But when they at length arrived at maturity, they turned their feed to the utmost account, and breeders, feeders, butchers, and consumers found them profitable. But the Rudgwick pig has departed. Crossings with the Chinese, and the finer and smaller English breeds, have completely changed the type, so that, in these days, the original stock has disappeared.

A glance at our illustration, which is an accurate picture of the Sussex swine of the present, will suffice to show the improvement which breeding and management have wrought in the ancient, overgrown, slow-feeding, and slow-fattening type. The present swine of Sussex strongly resemble the improved black breed of Essex. Like the latter, these excellencies have come to a large extent from the blood of the stock brought in from Naples. But they also have profited greatly from the intermixture with the blood of the large, parti-colored swine of Berkshire. The Sussex is an animal of good make-up, of a fair, medium size, with few coarse bristles, thin skin, fine, tapering snout, deep jowl, round, compact body, and pointed, upright ears. It matures early, and is quick and easy to fatten, weighing, at full size, and the right age, from 260 to 350 pounds, its best bacon stock reaching an average weight of 230 pounds. The flesh of the Sussex is finely flavored and of excellent grain and quality. Of bone, the breed has been objected to as too large, while the bones of the improved Essex, which are chiefly derived from the Neapolitan, are remarkably small. In general the Sussex of to-day is a very desirable pig for consumers, and the success which it has won, on its own behalf, and as an available cross to employ with other improved stock, especially with the Neapolitan, Chinese and improved Essex strains, proves it equally valuable to the breeder.



IMPROVED SUSSEX SWINE.

Engraved for the American Agriculturist.

Advantages of Soiling.

The practice of soiling is adapted for high-priced lands near large cities, where the market for milk and fine butter affords a sufficient compensation for the large investment of capital, and the other expenses which appertain to highly improved localities. As seven acres of pasture are required, on an average, to support one cow in fully profitable condition, it will not pay to feed cows in this way where land costs more than $100 per acre, and, indeed, fifty dollars per acre may be made the limit of cost in this respect. Where lands are cheap, the products of it are also cheap, and where the land is more costly, necessarily the products are dearer in proportion. Hence the dairyman whose farm costs him four to ten times as much as that of a western or southern farmer, cannot possibly compete with him in making butter or cheese, because the cost of transporting these products to market by rail, is much less than the difference in cost. Again, our hot dry summers very quickly burn up the pastures, and in July the feed becomes bald and sparse, and the milk product necessarily rapidly decreases. Hence some adequate provision must be made to meet this emergency, and nothing serves so well as what are known as soiling crops, which are cut and carried to the cows on their pastures, to help out the feed, or to the yards or feeding lots, where they are kept and fed wholly upon this green fodder. A very large product of milk of the best quality is thus procured, and the cows are kept up to their fullest productive ability by abundance of succulent food, helped by the use of such concentrated foods as can be purchased cheaply, and are suitable for the production of milk of excellent quality. The average product of the cows may thus be easily doubled, while the increased cost of the service is not more than one-fourth, or in many cases not one-tenth. In the writer's dairy the yield of the cows has been brought up from five pounds to ten pounds of butter per week, by means of soiling, while one acre of land under crops has been made to support a cow during the entire year, and less than half an acre per cow has been used for pasture and for the needed runs for exercise. The profit has thus been not only in the increased product, but also in the decreased area of land required, and in another way, viz.: in the making and saving of a large quantity of manure; the advantage of this system has been very considerable. But there are many persons living in suburban localities, whose homestead contains but a few acres, or one, or two, or three, and this limited area is all that can be afforded to provide room for house and stable, garden, and ground for keeping a family cow, a most indispensable necessity in semi-rural and rural districts. The practice of soiling meets such cases exactly, for if one acre of land can be made by any sort of management to support a cow through the year, or even the summer, a most important object is gained, and soiling will make this possible. For the practice of soiling, some suitable arrangements are necessary—a yard provided with feed-racks and a supply of water, adjoining the stable, and furnished with an open shed for shelter, and for large herds some adjacent lots are required. The remainder of the land is unobstructed by fences, and is all under the plow. Where soiling is only partial, and for the support of the cows when the grass fails for two or three months only, nothing more is required than suitable provision for growing the crops, and feeding them in some convenient manner, either in the pastures, or in the yard or stables.

H. S.

PERCHES IN THE POULTRY HOUSE.—Have the perches made wide enough to allow the chickens to cover their feet entirely with their feathers, and prevent freezing in the coldest nights. A foot or two below the perches have a scaffold of boards to fit closely, and sprinkle with plaster or dry earth from time to time, which, with the droppings of the hens, can be swept up and put in barrels for corn land. Below these platforms, boxes or nail kegs can be arranged for nests. Never have roosts over three feet from the ground. Even then have a stepping box or block at one end, so that heavy hens can get up easily and avoid injury to themselves. Have all the perches on a level, for if they slant, the hens will crowd for the highest place.

Alkali Lands of the Southwest.

RALPH S. TARR, TEX.

On the desert plains of the West and the Southwest are large white patches of land, commonly known as alkali soil. The peculiarity is caused by the presence of carbonate of soda. Even in the irrigated valleys much of this substance is found, and in places it is impossible to raise crops on account of its excess. In California, land that has never before shown the presence of the salt, is becoming useless on account of its increasing abundance, and a committee has been appointed to investigate the problem.

On the desert plateau, where agriculture is impossible, the presence of the alkali is of no economical disadvantage, but in the fertile valleys it is a source of much trouble to the agriculturists. By the natural processes of evaporation at the surface and capillary rise from below, these salts, which are present in variable quantities in nearly all the soils of the Southwest, tend to accumulate near the surface, and form the efflorescence, which gives the appearance above noted. Such a soil, aside from the destructive effects of the alkali, cannot be used for crops, because even the most thorough cultivation only results in breaking the soil up into hard lumps. Each irrigation softens it, but as soon as the sun has commenced to dry the surface, it becomes hard and cloddy.

The process of irrigation, so necessary in these dry countries, aids in the extension of the alkaline areas, and the farmer and fruit growers are puzzled as to what course to take. The region in which I observed it particularly was the fertile valley of the Rio Grande. Last spring, during the flood time, the river overflowed its banks to a higher level than it has been known to reach before for years. Shortly after the floods receded, large patches of alkali appeared. At first this was supposed to come from the evaporation of the water, but subsequent investigation proved to the contrary. Professor Hilgard, of California, has recently given the subject some attention, and his conclusions are interesting and valuable. He finds by analysis that all the soils of that country contain a larger or smaller amount of alkali, which, being soluble in water, tends to rise to the surface. This tendency is largely increased by irrigation. By their flooding the land, the water penetrates farther into the soil than does an ordinary rain fall, and thus more soil is exposed to its leaching action. Nearly all the water used in irrigation must eventually evaporate from the surface, and the greater the amount of water used, the more the rise of alkali. Analysis shows that these alkali soils are very rich in plant food, and that, if its excessive accumulation can be prevented, the soils containing it will prove very fertile.

It would seem at first thought that there is no remedy; but Professor Hilgard clearly shows that a proper system of drainage will not only prevent the accumulation of alkali, but even wash out what is already present. It would seem that in alkaline regions, irrigation without drainage is suicidal. By thus draining off the surplus water there is less evaporation at the surface, and part of the alkali is, with each irrigation, taken from the soil.

In the valley of the Rio Grande there are thousands of acres of land absolutely valueless at present, on account of the abundance of alkali; and throughout the Southwest are numerous similar tracts. The people of the country are not up to the standard of Eastern agriculture, or else they would have solved the problem before this. By scientific treatment this land can be reclaimed and made into valuable agricultural land. The best way would be to spread over the alkaline soil a layer of gypsum, and work it well by irrigation and plowing. A double decomposition takes place, the carbonate of soda (alkali) forming in the solution carbonate of lime and sulphate of soda, neither of which is destructive to plants. This chemical antidote, however, only changes the nature of the alkali, without removing it from the soil. Indeed, it tends rather to add to the amount of easily soluable matter in the soil, and, when the amount of alkali is at all large, is to be looked upon simply as an adjunct to other measures to be mentioned.

A system of drainage must then be established, and in this way the land can, doubtless, be made of great value, for it is naturally rich. The broadcast culture of cereals is the worst possible crop for an alkaline soil. They are readily killed, do not admit of cultivation, and give little protection to the soil against evaporation. Deep rooting crops which shade the ground are especially well fitted for such soil. Alfalfa, a very profitable crop in the Southwest, takes readily to alkaline soils, if the salts are not too abundant All fruits, especially the sweeter kinds, are found to flourish in slightly alkaline ground. Possibly sugar-cane and sorghum will find the soil adapted to their demands. A gentleman in Texas planted sugar beet on a little patch of alkali land on his farm, and they grew to great size, and were remarkably sweet. This was in a soil coated on the top with a white layer of alkali. Good agricultural land in the Rio Grande valley is worth twenty-five dollars an acre, and this alkali land can be bought for less than fifty cents per acre. With proper treatment it can be turned to account as an investment, for the good land about it is increasing in value.

Sowing Grass Seed.

As a rule, the sowing of grass of various kinds is made with some grain crop, and usually in the fall with wheat or rye. This method, however, is not just to the grass, nor is it favorable for the best results to the seeding. The so-called foster crop very often robs the grass and exhausts the soil of its needed nutriment, and a very poor catch is the result. If the soil is thoroughly well prepared by manuring and sufficient tillage, the two crops may grow together very well, and the grass make a good stand. But this is seldom the case except with a few farmers, who need no advice or suggestion upon the subject. The great majority of farmers need to study this subject, and understand the requirements of the grass for its successful culture.

The preparation of the soil should be very thorough. The land should be plowed deeply, and a liberal coat of manure turned under, not buried, but with the furrows laid over at an angle of forty-five degrees, so that the manure lies between the layers of soil standing on edge in a sloping manner. The harrow, run along the furrows, works the soil and manure together, mixing them and making them fine and compact. The harrowing should be continued until the whole surface is as smooth as a garden, and the soil is quite fine. If the land is clayey and lumpy, it should be rolled between the the harrowings.

Sowing the seed alone is preferable. If any grain crop at all is used, it should be oats in the spring, or buckwheat early in July, as may be most convenient. Excellent seeding has been made early in August with a pound of turnip seed to the acre. This shelters the young grass during the winter, and dying, the turnips decay in the spring and afford a most useful fertilizer for the crop. Timothy and clover, and orchard grass and clover, and the three kinds mixed, and orchard grass alone, have been sown in all of these three ways with better results than when sown with fall grain and subjected to the risks of the winter weather.

In sowing grass and clover seeds an even stand is desirable, and to secure this, great care is to be taken in the sowing. A very good practice is to make the last harrowing with great care, evenly and with the marks all parallel. Then the sower can follow these marks, first taking the edge of the field and returning six short paces distant from the first course. Then returning on the second course, and always sowing with the right hand to the left. Six feet for each cast is as much as can be taken with light seed, as orchard grass, blue grass, red-top, etc., and as much as should be taken with timothy, and the quantity of seed taken may be readily gauged to the width of the cast. The cast is made with each movement of the right foot. When the wind is blowing, even slightly, the casts should be made low, to avoid irregular dropping of the seed, and when the light seeds are sown it is easier to walk across the harrow marks when the tracks made are easily seen, and as the wind may carry the seed to one side, the sower may go out of the straight track to accommodate the wind, and on returning can easily distinguish the foot marks of the previous track in the soft soil.

A broad-cast seeder is a convenient implement, and costs but little, and can be carried by the sower with ease. It drops the seed low, and if the sower goes face to the wind at the start, the seed is not spread unevenly. When, in spite of all care, an irregular seeding is anticipated, it is well to sow half the seed one way, and cross the sowing the other way, when vacant spaces may be covered. An inexperienced sower should practice on the snow, using sand, which can be easily seen on the white surface, and in two or three attempts he will be able to make the sowing quite evenly.

The sowing should be done as soon as the last harrowing is finished, when the seed sinks in the loose soil, or is covered by the first shower. A smoothing plank is a good thing to cover seed with. It may be eight or ten feet long, and is fitted with a tongue and two stiff braces. The tongue is fitted to the plank on the level, so that when it is raised the front end of the plank is elevated a little. This prevents the plank from gathering stones or seeds in front of it, and causes it to ride over them. It leaves a smooth, even surface.

Large Game in Wyoming Territory.

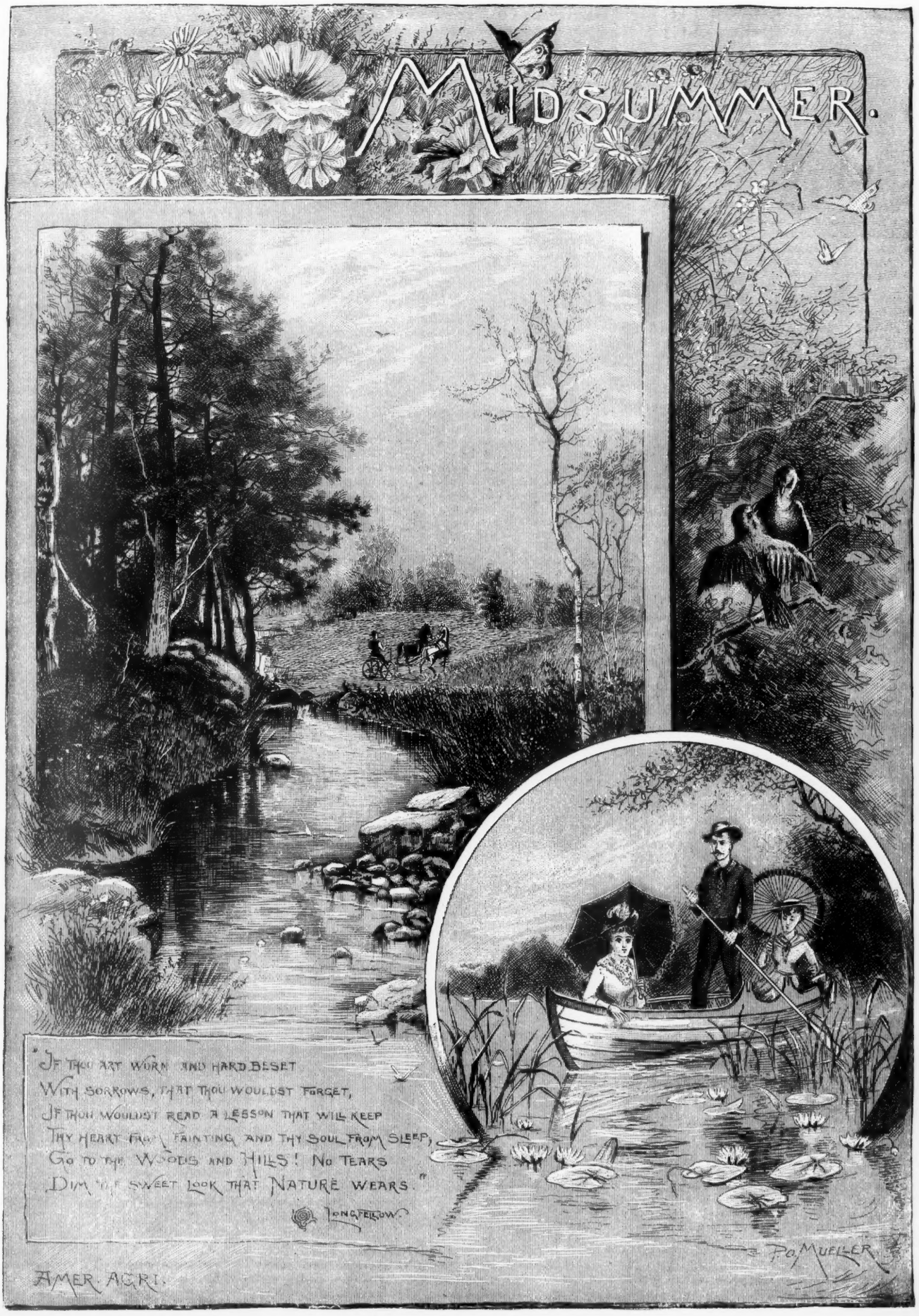
W. P. CRANDALL, WYOMING TERRITORY.

The Black-tail or Mule Deer, Antelope, and Mountain Sheep or Bighorn are the most numerous. Some varieties found in the East, such as the White-tail and Fan-tail, are not very plentiful, and are only found in timbered sections, along streams and in wooded mountain regions.

The Black-tail deer range on the foot-hills of the eastern slope of the Rocky Mountains, as far east as the Missouri river, where time and erosion have cut deep gorges through the sandy and chalky lands of the open country that lies away from timber. They are very large, of a drab-whitish color, and in general appearance resemble a small-shaped spirited mule, with very large ears. They, and other kinds in this section, range in the periods for shedding their horns, from the first of January to as late as the first of March. Some persons claim the season has something to do with it. During a severe winter the horns remain longer than in a mild one. But it is not a reliable rule. Age has more to do with it. Those with heavy horns retain them later than the younger animals. The larger deer have from six to seven points, but the number is rarely alike on both. Some weigh, when dressed, from one hundred and seventy-five to two hundred and twenty-five pounds, and even more. Old horns are found quite often in good condition, but they bleach and waste away in time. Old deer horns that had been used as tools, have been found in some old Spanish or Indian mines in this territory. They were buried in the debris that had washed into the old workings that were occupied in the earliest periods, before civilization could have reached the country.

The mountain sheep are well called "big horns." One of them, recently killed, had horns each of which measured at the base sixteen inches across. Another pair of horns measured each twenty inches. The antelope, so famous on the Western plains, are smaller than the deer. The dressed carcasses weigh from forty to sixty pounds. They are still quite numerous in unsettled parts of the country.

CO-OPERATION AMONG FARMERS.—Co-operation in the form of Farmer's Clubs, is nowhere more beneficial than where wheat is not a leading crop. Improved machines are too expensive for the farmer who sows but a small area to wheat, but by co-operation of several neighbors, each can enjoy the use of the best drills, rollers, etc., to the great benefit of all, and at comparatively small outlay.


MIDSUMMER.
"If thou art worn and hard beset
With sorrows, that thou wouldst forget,
If thou wouldst read a lesson that will keep
Thy heart from fainting and thy soul from sleep,
Go to the woods and hills! No tears
Dim the sweet look that Nature wears."
Longfellow.
AMER. AGRI.
P. O. Mueller

Drawn (by Mueller) and Engraved for the American Agriculturist.

OUR BASKET.

Clubs can at any time be increased by remitting for each addition the price paid by the original members; or, a small club may be made a large one at reduced rates, thus: One having sent 5 subscribers and $6.00, may afterwards send 5 names more and $4.00, making 10 subscribers at $1.00 each; and so for any of the other club rates. Subscriptions can begin at any time, as every number of the paper is complete in itself.

Bound Copies of Volume 45 (for 1886), uniformly bound, in cloth, gilt backs, will be furnished at this office for $2. If sent by mail, $2.30. We can usually supply at same rate any of the previous volumes, *i. e.*, from volume 16 to 45 inclusive.

Live Stock and Fruits in Eastern Oregon.—N. Blair, Lebanon Co., Ore., writes us: "Any one wishing to go into stock raising, will do well to visit southern and eastern Oregon. There is much interest here in raising fine stock. Fruit-growing is profitable in the Willamette Valley, in all localities near large towns which furnish local markets."

Northern Men Wanted in Georgia.—R. T. Waller, writes us from Habersham Co., Ga.: "The climate of this section of the Piedmont region is very equable, the soil is good, stock of all kinds thrives, corn is the staple crop, and fruits do well. We want good men from the North and West. The materials for success are here, but good live men are in demand."

Wire-Worms.—R. C. Smith, Newfoundland, asks us how to clear his land of wire-worms. No wholly effectual means has ever been found. Plowing late in autumn exposes a part of them to the action of frost, and spring plowing invites the friendly offices of the birds. A liberal application of fresh gas-lime immediately after fall plowing helps some. But all these means affect only a comparatively small part of the worms, which are brought to the surface.

Deep or Shallow Setting.—Samuel Hubbard, Jr., Yakima Co., Washington Territory, asks whether setting in shallow pans, or in deep cans is advisable. He has a new stone dairy house, through which a stream of cold water from a spring will be conducted. The deep-can system is by all means the best. There are various styles of patented cans, but with the advantages possessed by our correspondent, a plain, unpatented tin can ought to fill all requirements.

Stock Raising in North Carolina.—"Occasional," writes us from Wake Co., N. C.: "Stock raising and feeding are receiving increasing attention here, and the practice of feeding ensilage has been introduced to a considerable extent. Many settlers are coming from the Northern States, and there are over twenty communities made up almost wholly of Northern people, besides those found in every large city and town. Land is cheap, and Northern men heartily welcomed."

Molasses Vinegar.—F. A. Fisher, Hancock Co., Maine, asks us how to make vinegar from molasses, and also whether it is suitable for cucumber pickles. Four gallons of rain, or other soft water, to one gallon of ordinary molasses, will make a good vinegar. After mixing the two, add good, strong cider vinegar, to set it working. Keep it in a cask with the bung out. Vinegar made in this manner is all right for cucumbers or other pickles. The basis of it is acetic acid, formed from the molasses, as with cider vinegar.

Tennessee's Advantages.—A.D. Hale, Morgan Co., Tenn., writes us that after living in three Western States, he removed to his present location a year ago, and is greatly pleased with the change. "The climate," he writes, "is between the extremes found farther North and South, and there is an abundant supply of soft water. The soil is not as deep and rich as that of the prairies, but produces good grass and fruits, and Northern men find a cordial welcome. Amos S. Griffith, Marion Co., Tenn., a point a little south of the former, writes us that his county is twelve hundred feet above the sea level, and is mostly covered with heavy timber. The soil is sandy loam, and produces fruits of all kinds, grasses, grains, and garden truck. Though high, the land is generally level enough to cultivate with improved implements, and the climate is mild and salubrious."

Pipe-Clay Soil.—W. P. Robinson, Pittsylvania Co., Va., writes us that he has some land with a subsoil of pipe-clay, from one foot to three feet below the surface. He asks if it would, with underdraining, be suitable for market garden. Thorough underdraing will go far towards making the soil light and pliable; in fact, it is indispensable under conditions like those described by our correspondent. But even with this advantage a heavy soil with clay subsoil, is less desirable for market gardening, than that of a lighter character.

Grass for Sandy Soil.—J. E. Stevenson, Burlington Co., N. J., asks us what kind of grass will make a permanent pasture on dry, sandy soil, with sandy subsoil. Probably there is no grass which will do better on the sandy soil of Burlington County, than Tall Oat grass, *Avena elatior*. It starts extremely early in spring, produces a large amount of forage, is very nutritious, lasts for years, and withstands drouth best of all the grasses. It makes a profitable pasture grass, though it contains a bitter principle which makes it less palatable than some other grasses. The seed is costly, as it seeds very sparingly.

Water and Salt for Horses.—David Stuart, Cumberland Co., Va., asks us, whether clean or muddy water is best for horses. Also, whether horses should have salt at all times, or only at intervals of a week or so. Pure, clean water is undoubtedly best for horses, though sometimes, when driven into a stream, they stir up the bottom, and roil the water before drinking. But this indicates a morbid condition, and does not prove that dirty water should ever be given to horses. As to salt, the best way is to keep a lump of rock-salt within reach of every horse. The horses lick it off as they need it. Rock-salt is now in all the markets.

Dairying and Pork Raising.—"Dairy," Douglas Co., Neb., asks us: "Will it pay to start a dairy for butter only, and feed the milk to pigs? I can sell the butter at twenty-five cents per pound, and the pigs at four cents. Market twelve miles distant; pasture fifty cents per month a head; hay six dollars and a half per ton; bran sixty-five to eighty cents per hundred pounds. I have to start on, fifteen hundred dollars, two cows, horse, buggy, etc., and a first-rate wife." Any man with such a start, who can sell all his butter and pork at the prices named, can make money at it, provided he understands dairying and pork raising, and meets with no disasters.

Curled Peach Leaves.—J. T. J. Brentano, Marion Co., Ore., sends us some peach leaves, which he describes as "being crinkled up on the tree." These leaves are affected with what is called "curl of the leaf." It is supposed to be due to unfavorable weather when the trees start into growth in the spring. It rarely severely injures the trees, for as the weather becomes warm, the leaves which come out later are usually healthy and vigorous. Our peach trees are often affected with the "curl" in spring, but never more than slightly checked in growth by this disease, or whatever may be the nature of the malady.

Raising Onion Sets.—Geo. W. Beebe, Coos Co., Ore. Onion sets have to be grown on rather poor, but well-prepared and pulverized ground. The seed is sown quite thickly in shallow drills; except keeping the ground mellow and free from weeds, no special care is necessary. In August the sets are taken up, dried, and stored in a dry, cool, but frost-proof place, where they can be spread out in thin layers to prevent heating and decay. The smallest sets are best; large ones will generally go to seed after planting.—Refuse from a fish cannery, composted with muck or soil, will make an excellent fertilizer for nearly all kinds of crops.

Orchard Grass.—W. A. Rogers, McKean Co., Pa., sends us a specimen of grass for a name, and asks when to cut it for seed. The specimen is Orchard Grass, *Dactylis glomerata*, one of the most valuable grasses cultivated. It ripens a little earlier than Timothy, and for seed should not be cut until fully ripe. The seed is always sold and sown "in the chaff."—L. W. Welton, Rockland Co., Wis., asks us when to sow Orchard Grass in the fall. It may be sown at any time from the twentieth of August to the end of September, when the soil and the weather are not too hot and dry. As he proposes to raise it only for seed, twenty pounds of seed to the acre will be sufficient. Unless the soil is uncommonly clear of weeds, it is better to sow rye, and then seed with the grass. The rye will help keep down the weeds while the grass is starting, and be cut the following year early enough to give the grass a chance. In sowing Orchard Grass for meadow or pasture, about thirty pounds of seed to the acre are required. As the usual price of the seed is two dollars and a half per bushel of fourteen pounds, the first cost is quite heavy for a large field, and many Western farmers are getting their fields into Orchard Grass by sowing an acre or two at first, and saving their own seed. When well established, Orchard Grass will hold its own from twenty to thirty years.

Pasture Grass for Texas.—George Toumat, Bexar Co., Texas, desires information on the best grass to sow on dead spots in a permanent meadow, and be able to stand the long drouths Texas is sometimes subject to. The land, he writes, is partly heavy and partly light soil, underlaid with limestone. Most of our grass turns red as it ripens; we need a grass that we can mow right along with the rest if possible. The Johnson Grass, *Sorghum Halapense*, will probably fulfil these conditions better than any other kind. It is a rather coarse grass, but bears heat and drouth remarkably well, and may be cut several times during the growing season.

Preventing Sunstroke.—J. O. Thompson, Mineral Co., W. Va., writes us: "The best thing to prevent sunstroke is a thoroughly ventilated hat, the ideal hat for summer being that which simply shades the head. If such an one cannot be procured, the lightest and best ventilated one obtainable should be worn, and it should be frequently lifted and held above the head, so as to shade it and let the air circulate around it. The frequent wetting of the head with cold water is, of course, good. Do not wear anything that prevents the free radiation of the natural heat from the head, and the free circulation of air around it. If a person is prostrated by sunstroke, put pounded ice or cold water on the head, and give plenty of fresh air, cool if possible.

Grub in Lima Beans.—L. G. Cohen, Union Co., N. J. The large whitish grub, nearly an inch long, found in a lima bean, is new to us, never before having seen an insect of this size attacking beans. It has the appearance of some species of wood-borer of the family *Buprestidæ*, and it is possible that some female beetle of this family deposited an egg on a lima bean, instead of in the twig of a tree. We would be pleased to obtain live specimens of the same kind of grub, if any can be had, in order to feed them until mature, and obtain the winged insect. There is a small bean weevil, *Bruchus obsoletus*, which of late years has been quite destructive to the lima and other varieties of the bean, but its grubs are so small that twenty or more live in a single bean.

Cement Facing for Stone Walls.—John P. Playter, Butler Co., Iowa, writes us: "Can you tell me the composition of the cement that masons use for facing stone walls, so as to give them the appearance of granite? None of the masons here know how to mix the cement, nor what articles to use." It is very strange that stone masons in your neighborhood do not know how to point up and make a smooth water-proof face on the rough wall of the foundation of your house. All that is required is to use common stone-lime and sand, in the usual proportion for good strong mortar, then add a little cement, say about one shovelful to six or eight of the prepared mortar, as it is mixed in small batches for use. When the face of the wall is filled up and made straight and smooth, apply a thin coat of cement and fine sand, adding lampblack, yellow ochre, or other coloring materials, to suit your taste. If you want the face to be laid off in blocks, stripe with a brush before the mortar is thoroughly dry.

Joint-Worm Fly.—N. S. Willard, Washington Co., Tenn., sends us pieces of wheat straw containing pupæ of an insect known as the Joint-worm Fly, which, he informs us, is doing great damage in his neighborhood. This insect belongs to the genus *Isosoma*, but is referred to in the works of Harris, Fitch, Packard, and Glover, as a species of *Eurytoma*, a gall-making fly. But it does not make a gall, although the joints of wheat containing one of the grubs do swell a little, and then become weakened, and the straw or grain falls down. As this joint-worm infests the stalks near the ground, you ought to burn the stubble as soon as you can after the wheat is harvested, for the grubs and pupæ remain in this part of the straw. It may also be well to burn up all the broken pieces, or what may be called the tailings from the threshing machine, for the withered and immature stalks containing joint-worms, are very likely to be gathered with the healthy, and being brittle, are more finely broken up at the time of threshing the grain.

New York State Fair.—We are informed that according to present prospects the coming State Fair at Rochester will boom in every department. Entries are already coming in. A notable and most attractive feature will be the children's flower show. A special day on which all children accompanied by their parents, guardians, or teachers, will be admitted at a mere nominal rate, will be devoted to this feature.

Wisconsin Farmer's Institute.—Mr. W. H. Morrison, Superintendent of the Institutes of Wisconsin, informs us that the Board of Regents has already assigned Agricultural Institutes, to be held the coming winter, at nineteen places. In addition to these there will be five more assigned at towns where they are expected to attract the greatest number of farmers, and do the most good.

The Wonderful Development of Dakota.—C. C. Thomas, Stutsman county, Dakota, writes us: "Not many years ago Dakota was almost unknown, and represented a barren region. Ten years ago farmers on the eastern boundary believed wheat could not be grown as far West as the James River, and immigrants were advised not to go beyond the Missouri. To-day it must be admitted that fertile land is found in every direction, and that there is but a small proportion untillable. The region north of the Missouri is fertile, and has some of the finest grazing lands in the United States.

Preventing Rhubarb from Going to Seed.—L. W. Willan, Richland county, Wis., writes us: "I prevent my rhubarb plants from going to seed by covering them with two inches of soil so as to keep the crowns below the surface. Every fall I put on a dressing of well-rotted manure, which keeps the bed clean and productive. The bed is thirty years old, and is never touched with a hoe or any other tool. The plants are seedlings of Myatt's Linnæus." This plan may be easily tried by any one, but to give it a perfect test some of the plants should be left uncovered. There are several varieties of rhubarb, which rarely go to seed under any kind of treatment.

The New York Weevil.—J. W. Busse, Porter Co., Ind. The large grayish beetle, with linear white markings on its wing-covers, which you find eating the bark from your young apple trees, is known by the common name of "New York Weevil," or scientifically as the *Ithycerus Novaboracensis*. This insect is one of our largest snout beetles or curculios, belonging to the same great family of destructive pests, as the common Plum Curculio. Its specific name, *Noveboracensis*, which means New York, was given to this beetle 107 years ago, by the European entomologist Forster, probably because he received his specimens from some friend or correspondent in this city. This species of curculio breeds in the twigs of various forest trees, and probably in some kind of fruit trees, and, as you say, has the same habit of dropping to the ground when disturbed, as the plum and apple curculio. We do not know of any better way of destroying it than by catching and killing whenever and wherever found.

American Seed Trade Association.—The annual convention of this society was held in Philadelphia, June 14th, 15th and 16th. The attendance was large, and the sessions interesting as well as enjoyable. Jas. J. H. Gregory delivered an interesting address on Experimental Stations; C. L. Allen read a paper on Selection. Among the principal subjects discussed were the duties on seed; agricultural periodicals and their relations to seedmen; the lack of uniformity in weight, per bushel, in the different States. It was resolved that the Association should henceforth quote all grass and field seeds by weight, instead of by measure. A committee was appointed with the view of establishing a uniform method of testing seeds at the experiment stations. The next meeting will be held in Chicago. The officers elected for the ensuing year are, Wm. Meggat, Wethersfield, Conn., President; Albert McCullough, Cincinnati, O., Secretary and Treasurer; C. L. Allen, Garden City, N. Y., Assistant Secretary.

Missouri Fruit Prospects.—L. A. Goodman, Secretary of the Missouri Horticultural Society, has condensed, in a tabulated report, the answers to five hundred inquiries sent out to all parts of the State last spring, as to the condition and prospects of the fruit crops. Apples, pears, and peaches showed a prospect for about one-half a crop, some counties being as low as twenty-five per cent., and others as high as eighty per cent. Cultivated showed fifty per cent. better than those not. The low average was largely the result of excessive drouth last summer. The dry summer was no injury to grapes, for the per cent. shown was never better; raspberries suffered severely, and many old plantings had to be cut down, but new plantings well cultivated are in fine condition; the same with strawberries. The fact is that the best mulching and best protection against drouth is good cultivation. The rust is spreading among berries, and they need close attention and renewal with new beds to prevent its spread. The varieties of apples having the best prospect are Ben Davis, M. Blush, Romanite, Jonathan, Willowtwig, Mo. Pippin, Astrachan, Jannett, Benoni, Smiley, Rambo, Grimes Golden, Rome Beauty. Best prospect of pears: Seckel, B. Anjou, L. Bonne, Duchess. Best plums: Miner, Wild Goose. Best raspberries: Hopkins, Cuthbert. Best blackberry: Snyder. Best strawberries: Crescent, Cumberland. The thermometer went down to twenty-two degrees below, for one or two days, and yet the peach buds were not killed. Last summer it went as high as one hundred and four and one hundred and eight degrees in the shade for a few times, but the dry weather made it seem worse than it really was.

American Nurserymen's Convention.—The twelfth annual convention of American nurserymen, at Chicago, the present year, was well attended, and the proceedings were full of interest. The veteran Robert Douglas, of Waukegan, Ill., read a paper on "American Forestry." Other papers were read upon "Seed Control Stations," by Prof. Fernow; "Acclimatization of Plant Life," by Hon. Josiah Hoopes; "Landscape Art," by S. B. Parsons, etc. The subjects discussed were postage on seeds, bulbs, etc.; nursery agents and tree law, insuring nursery stock, reports on nursery stock from twelve States and territories, etc. The following officers were elected for the ensuing year: President, C. L. Watrous, Des Moines, Iowa; Vice-President, L. G. Bragg, Kalamazoo, Mich.; Secretary, D. Wilmot Scott, Galena, Ill.; Treasurer, A. R. Whitney, Franklin Grove, Ill.; Executive Committee, S. D. Willard, Geneva, N. Y.; Leo Weltz, Wilmington, Ohio; S. M. Emery, Lake City, Minnesota. The next meeting is to be held at Detroit, Michigan, June, 1888.

Horses, Bare-Footed or Shod?—"Amateur," Westchester Co., N. Y., writes us: "I have a thirteen-hand pony, four years old, granddaughter of Rysdik's Hambletonian. Last fall, he had shoes on her for about six weeks, but was not used in the winter. I want to know, will it be as safe to use her in the winter without shoes as with shoes, in the order in which they are generally kept. It is, of course, understood, that in a few days after a horse has been 'sharpened,' the calks wear off so far as the sharpness is concerned. The pony would be driven but a few miles any day, and would be in the stable more days than she would be out. She would be driven only on country roads. Though so small she is very fast, easily passing all the larger horses that have tried a 'brush' with her on the road. Now will you give your opinion, and permit those who have used unshod horses in the winter, to give their experience?" Any horse with perfectly sound feet, good frogs, and good bars, will travel better in winter bare-footed than shod, on country roads and in ordinary weather. After an ice-storm, when everything is a glare of ice, and little pools occur in the track, which are frozen solid, and particularly when half an inch or an inch of snow has fallen and covered these icy spots, so that the horse cannot tell when he may travel free, and when to take great care of his steps, a bare-foot horse is at a great disadvantage. He will soon learn to take care, and slip very little, but on icy roads he will not be able to draw much of a load, nor is he safe to ride, before some thawing and softening of the track has taken place. There are not more than three or four such days in an ordinary winter. On days when a shod horse will "ball," which is nearly half the time in some ordinary winters, the bare-foot horse has a great advantage in every way. What good are caulks when they are lifted up three inches above the ice on balls of snow? We have driven unshod horses winter and summer. If in summer the feet wear at the toes, which is where almost all the wear comes, we put on toe-clips or half-moon shoes, but these are worse than nothing in winter, unless, indeed, the season is a very open one, with bare-ground roads, when, of course, the hoofs might wear. On one occasion, a big bare-foot filly, a little headstrong, was ridden after a thaw, a sharp frost, and a light fall of snow. There were spots of snow-covered ice, which gave pedestrians many a fall, and the colt's feet went out from under her once. No harm was done, and she had no worse trouble. This is the only case in our personal experience, when a bare-foot horse in winter would have been better off and safer, if shod and sharp-caulked. No doubt, many readers of the *American Agriculturist* have experience in the use of bare-footed horses in winter. We would be glad to have them write us their views for the benefit of their fellow readers.

Animal Ailments.

Obscure Lameness in a Horse's Shoulder.—C. H. Carlton, Chicot Co., Ark. From the data given, it is difficult to make an exact diagnosis. Rheumatic affection answers the description more than anything else, yet it may be the result upon muscles or tendons. Would advise external applications of one part laudanum, two parts oil of turpentine, and four parts camphorated spirit.

Mange on Calves.—W. R. Franklin, New York. While the principal treatment of mange consists in local applications, as recommended in the animal ailment column of the July number of the *American Agriculturist*, the animals should also receive good, nourishing food, and be kept in scrupulously clean and dry quarters, where the air is clear and cool.

Uneven Teeth in Horses.—L. M. Caleb, Essex county, New Jersey. It is not rare that the molar teeth of horses become irregular and sharp edged, so that they interfere seriously with mastication, in consequence of which digestion becomes impaired. The sharp points of the teeth may also wound and lacerate the cheeks, so as to produce sores and inflammation. The only effective remedy in these cases is the filing off of the edges with a tooth rasp made for the purpose.

Diarrhœa in Calves.—S. Ross, Custer county, Dakota. Diarrhœa in calves is generally the result of indigestion, caused by too much or too rich milk, irregular feeding, long fasting, or poor food and water given to the dam. It arises more frequently in calves fed by hand, than in those that are with the cows. The treatment consists principally in removing the cause of the disorder, and regular and careful feeding. Lime water or other alkalies, given after feeding, have usually a beneficial effect. When accompanied with swelling, charcoal or ammonia should be given.

Worms in Swine.—George C. Dehaven, Stevenson Co., Ill. Swine are subject to several kinds of intestinal worms, which may require different treatment. Worms are much more frequent in swine than is generally supposed. The most effective remedy is Santonin; it may be given in doses of one-third of a teaspoonful morning and evening, two or three days in succession, to be followed with an active purgative. Another remedy which may be tried is wood-ashes, with soap-suds mixed with them; feed once a week.

Tender Hoof.—W. A. Gould, Sullivan Co., N. Y., has a horse who is sound in every respect except that the shell of his hoof is very thin. Lately the horse lost a shoe, and broke his hoof so that it is very difficult to attach a shoe with nails, and then it will stay but a short time. Mr. Gould desires information about shoes which can be fastened to the hoof without nails. Any skillful blacksmith should be able to make such a shoe, to be fastened with straps, but by far the best treatment would be to take all the shoes off the horse, and turn him in a pasture with soft ground, until the hoof has grown again.

Cure for a Horse Carrying its Tongue Out.—N. W. Julian, Pickaway Co., O., informs us that he has never known the following method fail to effect a cure of this annoying habit. When you start with a horse that lets its tongue hang out, buckle a strap around his nose a short distance above the bit, just tight enough that he cannot open his mouth, and not so tight as to be uncomfortable to him. When you stop, unfasten the strap. Some horses can be broken of the habit in a very short time; others require longer. To be successful, the treatment must be pursued perseveringly. If you use the strap one day, and forget it the next, the horse may conquer you, instead of you the horse.

Cows Losing the Use of their Tails.—Floyd Ford, Copiah Co., Miss., writes us: "I have had cows that after calving lose entirely the use of their tails, which seem to be totally paralyzed, and just at the base appear depressed, as if dislocated from the spinal column, and forced in by a heavy blow. There is no evidence of external violence apparent. The animals show no sign of pain or soreness in their tails, which they entirely refuse or fail to use, and which hang greatly in the way of excrements, and become filthy and offensive. The cows are valuable milkers, but, failing to use their tails when being milked, they kick so badly at the flies that milking them is very troublesome and disagreeable. What can be the cause?" This is probably a form of puerperal paralysis. Would advise cold applications, and friction along the spine, followed by blisters; if these effect no improvement, a current of electricity along the spine once a day, is generally productive of good results in such cases. The cows should receive good nourishing food, and be made as comfortable as practicable.

Comparative Profit of Beef and Pork.

In view of the present relative market values of beef and pork, it seems as though the latter product could no longer justly be called "the poor man's meat." For many weeks during the present season the prices for beeves, including all grades of quality, have been from two to five and a half cents per pound, live weight, and for hogs during the same period four and a half to five and a half cents per pound, also live weights. As the farmer is the producer, it is for him we write, making a comparative statement of cost of production. In ten months from its birth a pig grows to a size fit to be marketed, if given good care. With ordinary care the beast is salable when one year old; an extreme range of age would be eight months to fifteen months; so far for the hog. To place a creditable steer on sale, the animal should be three years past, up to four years. Hogs should not cost over eight dollars per head, and these should weigh two hundred and twenty-five to three hundred pounds each; this should represent eleven dollars and twenty-five cents per hog, at five cents per pound on two hundred and twenty-five pounds, or fifteen dollars per hog at five cents per pound on three hundred pounds weight. This calculation, which is moderate, shows a handsome profit to the farmer. To place a fat steer on the market will cost the producer four cents per pound on the farm. The beast, if well bred, ought to weigh gross thirteen or fourteen hundred pounds, and will have cost from fifty-two to fifty-five dollars. The profit at an advance of one cent per pound, would be three on a steer of thirteen hundred pounds, and four dollars on a steer of fourteen hundred pounds. Sold on the farm to a dealer or speculator, this advance of one cent per pound would be, as cattle are now selling in the live-stock markets, a fair and reasonable profit for the producer.

What has caused this unusual and unlooked for state of trade in two articles of such varied quality? We answer, heedless breeding and overproduction of inferior quality of cattle, with a mad rush to put cattle on the markets before they are ripe and in a state to prove profitable to the wholesale butcher, whose interests are one with those of the producer. During the weeks of the year when grass-fed steers are largely offered for sale, much loss is experienced by wholesale butchers, as the cattle dress to low weights; and the steers then coming forward are invariably either Western range cattle or low native steers; both classes which require to be well matured to be profitable when slaughtered. On the 16th of May last there reached the Jersey City yards thirty-five black polled Aberdeen-Angus steers, which had been fed in Iowa, and were sold in Chicago to an Eastern wholesale butcher at five dollars and fifteen cents per one hundred pounds, actual gross weight thirteen hundred and forty pounds, and in Jersey City thirteen hundred pounds—a loss of forty pounds shrinkage. So compact, and well built and fatted were these steers, that they were certain to yield fifty-eight pounds net, which would give the wholesale butcher carcases of seven hundred and seventy-five pounds to sell, and at current rates he did sell. Suppose there were thirty-five Texas steers, grass fed, nine hundred pounds per head to cost three and a half cents per pound in Chicago or thirty-one dollars and fifty cents per head. These miserable creatures might dress fifty-five pounds net, and would then represent four hundred and ninety pounds net, and would be difficult of sale at any price, as cheap cow and bull meat would compete with such rubbish, which is only salable to buyers of the poorest meats.

The lesson of this to farmers is not to urge them on to overproduction of hogs, as thus they would fall into the same pit that the ranchmen have dug for themselves, but rather to encourage a mixed production. The well-bred pig is most profitable to the small farmer, and the beef cattle to the men of more acres, who also should have pigs to consume the surplus dairy matter. To breed rugged native steers and expect them to grow into plump beeves will be a disappointment. The weights most salable in beef cattle are twelve to thirteen hundred pounds during the summer months, as such carcasses cool readily when placed in refrigerators and do not require nearly so much ice to keep them in a salable condition. Thirteen hundred and fifty to fourteen hundred pounds, and as high as fifteen hundred pounds, even to sixteen hundred and fifty pounds, is a good and safe range during the winter months for farmers to feed up to. The matter of weight in hogs is important only as regards the quantity of food consumed to produce it, as at all seasons of the year packers are willing to buy heavy hogs, and the retail trade of great cities always takes pigs and light hogs.

Two Good House Plants.

JULIUS J. HEINRICH.

BEGONIA.

All the species of Begonia are interesting and beautiful ornaments in the greenhouse or parlor, in winter, the graceful pendulous flowers of these plants render them most desirable, but with the added beauty of their glossy waxen foliage, they are simply superb. Several tuberous rooted species have recently been introduced. They have large, showy flowers, and succeed well in a moist, half shady place. We have not the space here to give an extended description of them, but shall mention the two which are most easily cultivated in the room or window.

Begonia multiflora has pretty large pink flowers, and is of easy culture in the house. It is covered with a profusion of flowers. It does best in a cool place, with plenty of sun to make it bloom well. The Begonias must be sprinkled three or four times a week, to prevent insects from infesting them. I have seen a specimen plant of this variety grown by a lady in her room, that would give credit to any florist, had he grown it.

Begonia glaucophylla scandens. This is a drooping or creeping species, with light green, glossy leaves, and large clusters of orange salmon-colored flowers. For growing in hanging baskets, this species will be looked for and greatly esteemed, as it droops beautifully over the sides, and when in bloom there is no prettier object. This, like nearly all begonias, is propagated by either cuttings or seeds, and they do well in a light, rich soil.

In preparing a hanging baskets, select one of the rustic imitation toy baskets, and put a begonia on each side, and some graceful plant, such as a Dracæna, in the center.

OXALIS OR WOOD SORREL.

This genus comprises a great number of species, differing in their habits and manner of growth, but we find the three we have selected the best for window gardening, being bulbous varieties.

Oxalis Boweii is decidedly the best and handsomest of them all. The flowers are large, of a most brilliant crimson color, and produced in the greatest profusion. If planted in pots, or better still, in small earthen hanging baskets, say about six bulbs in a six-inch basket, they will cover the entire surface with a mass of leaves, much like those of the common Red Clover, but larger, with from five to ten clusters of four to ten flowers each, and rising about six inches above the foliage.

Oxalis alba, a white kind, with leaves and flowers much smaller than the foregoing; it is also a very profuse bloomer. It does best in pots; it will also do well in baskets, stands, vases, etc., planted at the edge, where it will cover them quickly with a growth of small leaves, like those of White Clover.

Oxalis floribunda rosea, a rose-colored variety, much like *alba*, by some called *multiflora*, it being very free blooming. It is of a sort of rose or lilac-rose color, with a yellow center, or eye. There are many varieties of *O. rosea*, and this particular one is very hard to get. *O. lutea*, a yellow flowering species, very good for large stands or baskets but I do not think much of it for small work. It is a native of the Cape of Good Hope, with long slender flowering stalks, sometimes ten to fourteen inches long, with clusters of golden yellow flowers on a long, slender scape. These are liable to be broken off, and for this reason I do not prize it highly. All the species under cultivation are either from the Cape of Good Hope, or South America, and they are all easy of cultivation. Give them a place where they can have sun and shade, and light rich soil, and water freely.

Roses, Budded, Grafted, on Their Own Roots.

Every summer we are asked which are preferable, Roses on their own roots or those that have been budded, or grafted. The choice will depend upon one's object. If one is a rose fancier, and wishes to compete at the exhibitions for "the best ten," or "the best five," he will select those that are budded, or grafted, as these give by far the largest and finest blooms. So if he wishes to keep up with the times, and have the newest varieties, he must take those that have been worked, as he can get no others. Roses on their own roots take much more time to produce them, and being propagated by cuttings, they usually require much more material. A cutting generally has several buds, which, if budded, would each produce a plant. The stocks used are the English Briar or Dog Rose (*Rosa canina*), the Sweet Briar (*R. rubiginosa*), and the *Manetti*, a wild rose from Italy, named from an Italian who first raised the stocks from seeds and sent them to England. The Standard or Tree Roses, are budded high on Briars; many are imported and bought by the inexperienced who plant them. They seldom live a second year, on account of our hot suns. Binding moss around their stems, and keeping it moist will prolong their lives somewhat. Roses on Manetti stock are worked near the roots. Unless one looks out for them, the stock will throw up numerous suckers, and he will have a thicket of briars, instead of choice named roses.

Topping and Harvesting Tobacco.

The plants should be topped when the leaves are making their most vigorous growth, so that after topping they will continue to grow, and attain the highest degree of perfection. The flower stalks should be pinched off below the third upper leaf. It is not advisable to defer topping till the flowers open, else the leaves will not make as good a growth, and the plants will run largely to suckers. These suckers have to be frequently removed. The proper time for harvesting depends upon varied circumstances. Under average conditions, the plants are allowed to stand fifteen days after having been topped; in a dry and hot season the leaves will ripen in thirteen or fourteen days, and in cold, wet weather, sixteen to eighteen days may be required. As the leaves mature, they become darker in color, and assume a mottled or marbled appearance; they also lose the fine down on their under side, and appear thicker and leathery to the touch, while previously they were soft.

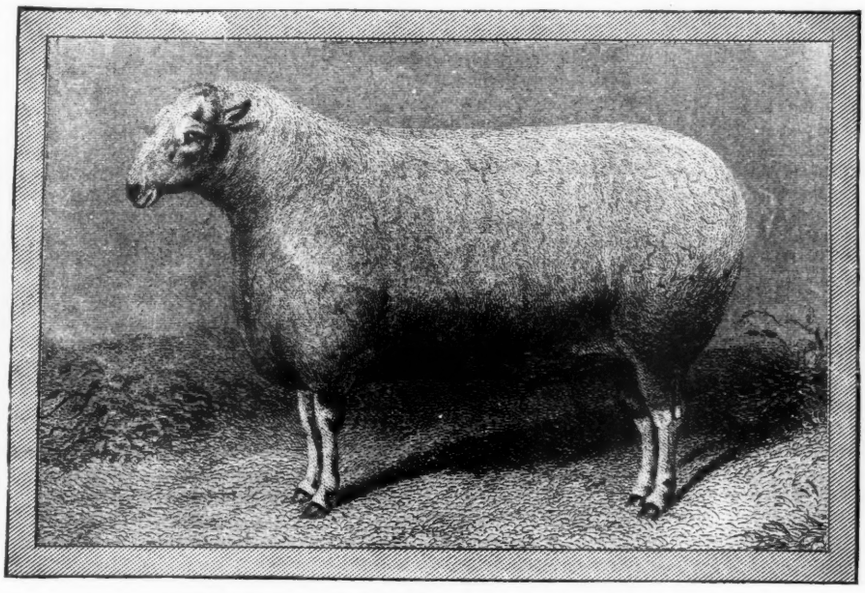
The leaves should not be cut until the dew upon them has entirely evaporated. On hot days not more should be cut than can be brought under cover the same day, else there is danger of sunburn; and when cutting the plants, the buts should be placed towards the sun. After the plants have wilted sufficiently, so that they may be handled without breaking the leaves, the plants are placed in piles of twenty or twenty-five each. Five or seven plants are then put on each lath, according to the size of the plants, and these laths are conveyed to the shed upon a platform wagon or rack, especially made for the purpose. In the shed the laths should be six or seven inches apart, to admit of free circulation between the plants.

RED ANTS—The little red ants which are so troublesome in the house, may be caught in sponges into which sugar has been sprinkled. Then drop the sponge in boiling water, and kill the ants.

Leicester Sheep.

The original sheep of Leicestershire was a large animal, with coarsely-grained flesh, which had almost no flavor. The natural habit of the race was to feed very slowly, and it therefore arrived at maturity late. In shape the sheep was long of carcass, flat-sided, large-boned, clumsy and ungainly. But it showed good weight, and the length of the staple of its wool made it prominent among the long-wooled varieties, whose other types were the Teeswater, the Cotswold, the Heath, the Dartmoor (or Bamston), the Lincoln, the Romney Marsh, the Berkshire, and the Exmoor. The Leicester also possessing great individuality, and impressed itself firmly upon all strains of blood with which it was crossed. Whence it came, or whither it was brought to find its home in the pastures, and on the sward of Leicestershire, and the adjoining counties of luxuriant midland England, are facts lost in the silence of remote antiquity.

Notwithstanding the advantages which size and length of wool gave it, the ancient Leicester was an unprofitable animal. Nor did it advance to a first place in the wool and mutton world, until Bakewell of Dishley, seeking to put all its inherent value to the utmost use, began his improvement of the race, with results which many breeders since his day have attempted to emulate, and whose efforts never will cease to have effect upon the production and development of all classes and grades of live stock. Bakewell's theory was utterly different from that of former breeders in Leicestershire; they had been guided by a wish to obtain and maintain great size of carcass, regardless of shape, and to secure a heavy wool-clip, whatever the fate of the mutton. Bakewell concluded that shape and a habit of ready fattening were qualities of the utmost importance, which sheep of large structure and heavy bones did not possess. They were extravagant feeders, but they did not have the faculty of rendering the feed to the best advantage. Thus he was led to the opinion that money in sheep-breeding was to be had out of a sheep smaller in size, for it could make weight more rapidly upon a less quantity of food.



THE NEW LEICESTER SHEEP.

Engraved for the American Agriculturist.

What was actually accomplished by Mr. Bakewell, the reader will note clearly from an account of it by a Northumberland farmer, who describes the improved Leicester as peculiarly distinguished from the other long-wooled breeds by their fine, lively eyes, straight, broad, flat backs, round, barrel-like bodies, small bones, thin pelts, and inclination to make fat at an early age. The Dishley (improved Leicester) breed is not only peculiar for its fat, but, also, for the fineness of the grain of its mutton, and the superior flavor of it, above that of all other long-wooled sheep, so as to fetch nearly as good a price in many markets, as that of the small Highland, and other short-wooled breeds. The general weight of the carcass is eighteen to twenty pounds the quarter for ewes of three to four years, and twenty-to twenty-five pound for wethers of two years old, while the wool averages eight pounds to the fleece, with a length of staple ranging from six to fourteen inches. Mr. Bakewell himself was enabled to let one of his improved rams, the famous "Two-pounder," for so large a sum as 800 guineas ($4,200), in a single season, at the same time reserving to himself one-third of the ewes produced, which exemplifies the results of his improved system of breeding yet more forcibly.

What Bakewell's method had been, the world never has learned. He retained the secret of it with utmost caution, so much so as to have wrought one of our own country's most distinguished authorities and publicists—the late Hon. Henry S. Randall—to that high pitch of indignation which led him to observe: "The whole management of the famous 'Dishley Society' betrays selfishness the most intense, and, in plain English, meanness the most unalloyed. Should a man, claiming to be a gentleman, in this country make valuable discoveries in breeding, or in any other department in husbandry, and closely conceal them from the public, his conduct would meet with universal reprehension and contempt." He believed that he owed his success to the virtues of wise selection of breeding animals, and, having started out in a certain direction, to a faithful, persistent adherence to the principles which he determined upon in the outset.

The new Leicester has found its way into every portion of the world, wherever the British Colonial system has gained a foothold, and into the countries of Continental Europe, as also within these United States, from sea to sea, in every State and Territory, our possession of the race having grown from the small importation made about 1812 by Mr. Christopher Dunn, of Albany, N. Y. With us, however, the new Leicesters have not proven so great favorites, in an "all around" way, as some other of the British breeds, because when highly bred the sheep are indifferent nurses, and rather indifferent breeders; but judicious crossing makes good these deficiencies to a very large extent, and the blood serves well in mixture with the other bloods found in American flocks.

Fighting Poultry Vermin in Summer.

Frequently the most difficult work of the poultry man is that of ridding the premises of vermin. Most persons do not become aware of the presence of vermin until the little red mites are seen in myriads. These can easily be destroyed by using proper methods. The great scourge of poultry is not the mites, but the large body-louse that hides at the base of the feathers, on the head and neck. As they are only found there on the fowls, an examination of the quarters does not reveal them, when they may be busily at work on the birds. When the hens seem to droop without apparent cause, the chances are that a close examination on their heads and necks will reveal swarms of these lice. Little chicks, especially those that feather very rapidly, such as Dorkings, Games, and Leghorns, will soon succumb to the large lice, and often the cause will be ascribed to something else.

To prevent lice on fowls, the best thing is the dust-bath, which must consist of fine dry clay or coal ashes. If the quarters are kept clean, the hens will prevent the attacks of lice by dusting, but when once the lice put in an appearance, the poultryman is compelled to take active measures, as the lice must be fought until not a single one remains. Kerosene must not be used on the bodies of the hens, as it will sometimes kill them. For the large body lice, first grease the heads, necks, and vents with a mixture made by adding a teaspoonful of crude petroleum to every gill of lard. Use it warm, so it will spread well. Then dust the hens well with Californian or Persian Insect Powder. Repeat this every third day, and dust every portion of the body, but do not grease the body—only the head, neck and vent.

To clean the poultry house, every crack and crevice must be reached. The roosts and nests should be moveable, and outside. Sponge the roosts with kerosene, apply a lighted match, and let the fire run over it. Empty the nests, (burn the debris,) and sponge them with kerosene, applying lighted match, the same as with the roosts. Now thoroughly mix one quart of kerosene oil to four quarts of strong soap-suds or skim-milk, churn them to an emulsion, and sprinkle it, from a watering can, over every part of the house—floor, walls, and even the roof. Saturate them well, then open the doors and allow the house to dry. Next, thoroughly dust every part of the house with a mixture of the following: Fine dry lime, one peck; carbolate of lime, one pound; Persian Insect Powder, one pound. These materials should be fine and dry, and should be blown into every crack and crevice, and not a square inch of space be overlooked. Put kerosene on the roosts—every part, and then replace them. Put fresh earth and clean chopped hay in the nest boxes and set them in position. Dust the nests thickly with the powder suggested, and add a quart of the powder to the dust bath. Saturate the yards with a solution of one pint carbolic acid to ten gallons of water, and if necessary spade them. Before cleaning the house remove the droppings, and as they will contain mites, pour the soap-sud mixture over them, and apply them on the field, at a distance from the house. The droppings are valuable as manure.

All this care and preparation calls for work, but it is absolutely necessary. And it must be repeated until lice no longer find it comfortable. Get rid of them, and then keep them out. At this season the greatest vigilance is necessary. Examine the house, as well as the bodies of the hens, at least once a week, as there is no knowing when lice may be present.

TAKE A VACATION.—When haying and harvest are over, take a vacation. Hitch up the horses to the spring wagon, load up the needed conveniences and the family, and get away to the shores of the sea or a lake, or to some pleasant hill or mountain, even if not over a mile from home, provided the spot is an attractive one and the farm out of sight. Camp out for a week, if two cannot be afforded. Rest and recreation are the objects sought; so do not worry about how things are going on at home.

Cure for Self-Milking Cows.

A cow which has acquired the habit of milking herself is as worthless an animal as can be kept on the farm. It is a case where production and consumption follow each other in a vicious circle, which cuts off all show of profit. If the habit cannot be broken, the only course left is to dry off the cow, and fatten her for the butcher. But most cows can be cured of the habit by proper treatment. Many devices have been used successfully for this purpose, some of which are illustrated herewith. Figure 1 is an old invention. It consists of a

Fig. 1.

leather halter, to the front of which is firmly attached a thin strip of hard wood, extending from the forehead to the muzzle. A piece of hickory or ash shaved very thin in the middle, is nailed to the upper end of the face-piece, and parallel with the lower end, which is held half an inch or more away from the face piece, is furnished with a sharp nail, which plays through a hole in the face piece. A very slight pressure carries the sharp nail to prick the nose. Sharp points are also inserted into the end of the spring piece, which prick the cow whenever she attempts to suck herself.

Figure 2 is somewhat similar, but more simple in construction. It is a leather halter set with pointed nails driven from the inside. The nails have broad flat heads, and after they are driven in, a second thickness of leather is sowed on, riveted inside of the first, as shown in Figure 3. The whole is held in place by a buckle on the strap behind the ears.

Figure 4, engraved from a sketch and description furnished to us by J. L. Hilbert Hitchcock Co., Nebraska, shows a device which restrains the cow, without inflicting pain. A hard-wood stick of suitable length, according to the size of the cow, is pierced with a round hole at the upper end, through which a rope is passed, fastening it to the cow's horns. An inch or two from the lower end a slot is cut wide enough for a surcingle, which is

Fig. 2.

slipped through the slot, and buckled around the cow. This permits her to move her head up and down freely, but keeps her from turning it far enough sideways to indulge in her bad habit.

Figure 5, furnished us by James Snodgrass, St. Louis Co., Mo., shows a modified arrangement, which affords the cow more liberty, while it is equally effective. A piece of hard, tough wood, an inch wide and half an inch thick, is fastened at one end to a leather halter on the cow's head, while the other end is loosely bolted to a shorter piece of wood. The other end of the short stick is held by any available fastening to the surcingle around the cow's body, as shown in the engraving. Whatever means are used to break this vicious habit, care should be taken to milk regularly. Neglect of this is a frequent cause of acquiring the annoying habit of a cow sucking her own milk.

Suggestions for Raising Calves.

If for a month or six weeks previous to calving the cow is fed regular rations of roots or fruit, assistance in any form will generally be unnecessary. Nature will perform her work better than man can. Heating foods, like corn or cotton-seed meal, should not be given the dam for a week or two previous to calving; a bran mash daily during this period is of great benefit. The cow should not be confined to stanchions, nor in any way that would interfere with free and natural action. Indeed, a roomy box-stall is preferable, and more like the freedom of a pasture. As it is born, the calf should be placed with its dam, where it will be warm and not liable to get portions of the bedding or litter on it, as this may prevent the cow from licking it, a very important operation, especially if the weather is cold. If the mother refuse to do this work, a little meal may be sprinkled on the youngster to tempt her. This is essential, not only to the calf's present comfort, but to its after-thrift and beauty. Occasionally a cow will be found that will refuse to perform the duty; in this case the calf should not be left to dry and progress the best it may, but should be sponged down with tepid water and rubbed dry, straightening out the hair at last with a stiff brush and comb. Let it be induced to suck as soon as it can be got upon its

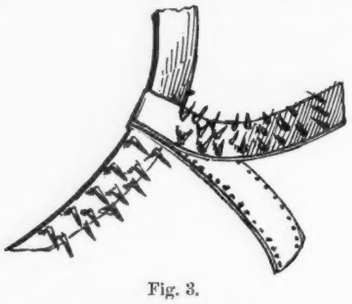


Fig. 3.

feet, as this milk will get all the functions in working order, and prove a gentle physic—the only physic, by the way, that should ever be given an animal at this critical period. Objections are raised against allowing a calf to suck at all, but a more natural practice cannot be devised, nor one that is more conducive to its after well-being. The first milk, in its gradually changing conditions, is the most necessary food the young creature can have, and in its change during the first three or four days, it brings the digestive organs of the calf to a condition where it will be able to take stronger food. At the end of three or four days the calf can be taught to drink, but should not then be fed with cold nor skim milk. When it is decided that it shall no longer suck, let it be patiently taught to drink, unless a feeder is used, which is by far preferable to allowing the rapid drinking of the milk. Back the calf into a corner, and inserting a finger in its mouth, bend its neck and put its nose into a pail in which are but about two quarts of milk. Hold the pail firmly between the knees, that the struggles and bunting may not upset it. After the calf has sucked the fingers a moment, spread them, and a little milk will be taken between them into the mouth. It will soon take the hint, and after a few lessons drink without the fingers, which have been removed by degrees. It is best to let the calf get a little hungry before attempting the first lesson. One objection to feeding a calf is, that it will drink its ration so rapidly that there is no opportunity for mixing with it the saliva, and imperfect digestion follows. A calf-feeder (there is no better than Small's) compels the calf to slowly suck its food, and causes the same frothing at the mouth that is always noticed when a calf obtains his dinner in the natural way. This is simply the evidence of the action of the salivary glands in supplying what Nature demands to be thoroughly mixed with all foods, whether solid or liquid, for their easy and full assimilation. Where milk is scarce or expensive, calves are sometimes reared on hay tea and grain, but aside from the trouble of making this drink, it has not the qualities of milk, and is not so readily assimilated. In beginning to feed a young calf, give it new milk direct from the cow for the first two or three weeks, or if not, let new milk be warmed to blood heat or

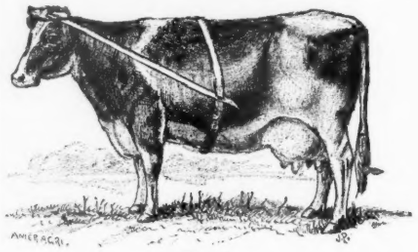


Fig. 4.

a trifle warmer, to allow for cooling on being placed in the pail or feeder. For the first week or ten days, feed two quarts three times each day; after this, increase the amount from two to three quarts by degrees, and feed but twice per day. When changing from new to skim milk, and when adding grain, do it gradually. If feeding three quarts of new milk, put in but one-half pint to a pint of skim milk at first, keeping back the same amount of the new milk. The next day keep back a little more of the new milk, making good its bulk with the skim milk, and continue this ratio until all skim milk is being fed. Add a little wheat-shorts or middlings, oat-meal or oil-meal, increasing the quantity to take the place of the richness denied the calf in removing new milk. Never let a calf stop growing. It is the custom on many farms in Europe, to keep calves muzzled that are in the stable, in order that they may not eat filthy straw or parts of manure. If a bundle of hay is tied in where a calf can smell of it and not soil it, it will begin to chew and then to eat it much sooner than it otherwise would. In mild weather let calves into a small and nicely-grassed lot by themselves, feeding and handling them regularly, taking pains that no other stock get into the same lot. If the sun is hot be sure the field contains an abundance of fresh water, and if there is no natural shade from the sun, let a shelter be made of boards or in some other way. Comfort is as essential for the happiness and growth of a calf as for a child. Let the milk or other ration be continued for at least three months, and longer if possible. In the fall of the year and all winter, a ration of a quart

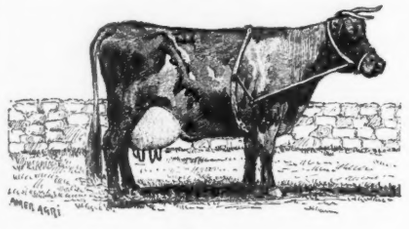


Fig. 5.

or two of roots or a pint or two of oats daily, is an excellent one. At the beginning let the ration be very small, and increase it slowly. If roots are fed, let them be crushed or pulped, and oats are more readily digested if ground. In the absence of these feeds, a little wheat shorts, wet with water, is desirable. Wheat and oats contain elements that are conducive to the formation of bone and muscle to a marked degree, and food of this kind is very essential in building up a good frame for the young animal, which means a good constitution.

A Country Cottage Costing $3,500.

D. W. KING, ARCHITECT.

The accompanying engravings represent a very attractive and picturesque cottage, which has recently been erected on Staten Island, and which is designed and adapted for either farm or village.

The first story contains a hall, parlor, sitting-room, dining-room, kitchen, pantry, and closets. The principal rooms, as shown by the plans, communicate directly with the main hall, a most desirable arrangement, as it avoids passing through the dining-room to reach the kitchen. The pantry connects with the kitchen and dining-room in a convenient locality, and is provided with a double hinged door from the dining-room, which closes of itself so as to keep out the fumes from the kitchen. There are five good-sized rooms on the second story in addition to the bath-room, each provided with a closet. In the attic there are two bed-rooms and a good-sized store-room. The windows above the basement have seven-eighth inch yellow pine jambs and heads, with one and an eighth inch white pine sill, and two inch subsill—boxed for weights, one and a half inch white pine sash—glazed with double thick American sheet-glass, properly bedded back, puttied, and bradded in place with glazier's points; to balance with cast-iron weights and braided cotton cord. The framing timber to be of sound dry spruce of the following sizes: Sills four by six inches; plate, four by four inches; first floor beams, two by ten inches; sixteen inches from centers.

Second floor beams,	2	by	10	inch,	16	inches	from centers.
Attic " "	2	"	9	"	16	" " "	
Rafters	2	"	8	"	16	" " "	
Ridge	1¼	"	9	"			
Outside Studding	3	"	4	"	16	" " "	
Inside "	2	"	4	"	16	" " "	
Girders	6	"	8	"			
Bridging	2	"	2	"			
Ledger Boards	1	"	6	"			
Roofing "	1	surfaced hemlock.					
Sheathing "	1	"	"				
Veranda Posts	6	by	6	inch,	white pine.		
" Sills	4	"	6	"			
" Fl'r beams	2	"	8	"			
" Rafters	2	"	6	"	16 inches from centers.		

There is a cellar under the entire building, seven

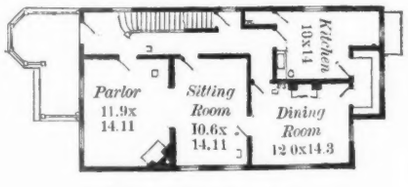


Fig. 2.—GROUND PLAN.

feet in the clear, with outside steps of flag-stone, and wooden stairs from cellar to kitchen. The bottom of the cellar is concreted three feet deep, leveled off smooth. The foundation walls are of good field stone, eighteen inches thick, hammer-dressed to secure good beds, well bonded, and laid to a line both sides, in good lime and cement mortar, with its top leveled to receive the framework. The cellar window frames are of plank, with wooden sills, and flag-stone sub-sills set in the masonry. The level of the first floor is three feet above the grade line. The heights of the stories are as follows: First story, ten feet; second story, nine feet; attic, eight feet—all in the clear.

The roofs of the building are sheathed with one inch surfaced hemlock, and shingled with xxx eighteen inch pine shingles, laid five and a half inches to the weather. The side walls of the building are covered with surfaced hemlock, and one thickness of three-ply rosin-sized sheathing paper; then clapboarded with half inch by six inch white pine siding, of the best quality, securely nailed to

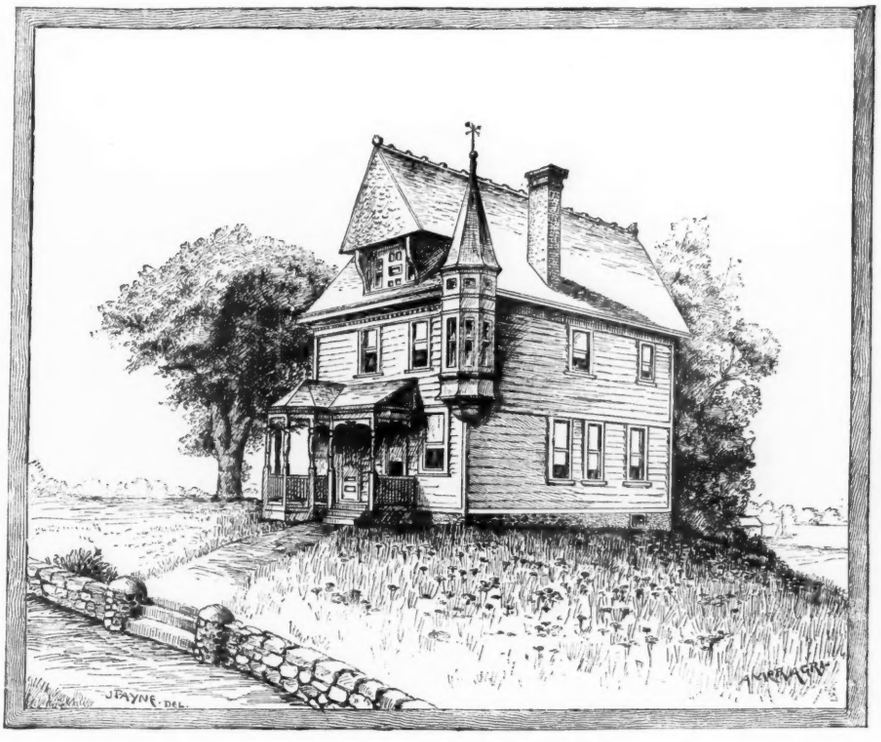


Fig. 1.—PERSPECTIVE VIEW OF COUNTRY COTTAGE.

each stud. The corner boards, belt and base courses, cornices, door, and window casings, finish of dormer windows and oriel window, veranda, etc., to be of one and an eighth inch white pine to show clear surface. Veranda posts, newels, rails, steps, etc., of white pine, as shown. All windows, except in the cellar to have outside rolling blinds.

DOORS.—All outside doors to be two inches thick, two feet ten inches wide, seven feet six inches high; five raised panels, moulded both sides. Folding doors, five feet four inches, by eight feet. All other doors on the first story to be one inch and a half, by two feet eight inches, by seven feet, with four raised panels, moulded on both sides. Main doors of second story to be one inch and a half, by two feet eight inches, by six feet ten inches. All of white pine.

FLOORS.—The floors of the first and second stories to be of seven-eighth inch by four inch, tongued and grooved mill-worked yellow pine. The attic of seven-eighth inch by six inches, white pine, all driven well together, and securely blind-nailed to each beam.

INSIDE FINISH.—The architraves, base, wainscoting, etc., and all the inside finish (except mantels, stair-rails, newels and balusters) throughout, to be of yellow pine thoroughly kiln-dried, and finished with two coats of Crockett's Preservative, rubbed smooth.

STAIRS.—The risers and treads of stairs to be of yellow pine; the newels, rails and balusters of ash.

MANTELS.—Mantels of ash with tile facings, hearths, grates and fenders complete.

PLUMBING.—Fit up a closet with tank, ash seat and cover hinged to lift; bath-tub supplied with hot and cold water; water supply from street, or tank in attic; kitchen sink with hot and cold water.

BOILER AND RANGE.—Use a portable range with water-back, and connect the same with a forty-gallon galvanized iron boiler on a stand; circulating pipe connected with top of boiler leading to bath-tub and sink. The soil-pipes, tin-work, painting, and all the hardware, are of the best quality.

Preserving Eggs for Winter.

Many various methods are recommended for preserving eggs, yet very few manage to keep them in large numbers. Limited supplies are stored away for family use, and others are kept in cold storage, at the great commercial centers, but the business of preserving them for the market has never become general. There are many obstacles to success, which are not always considered. First, only fresh eggs are suitable, yet it is difficult to secure them unmixed with older ones. A single stale egg may cause the loss of all in the same package. Second, eggs from hens which run by themselves will keep much longer than those from hens which are kept in company with males. A fertilized egg will keep only one-third as long as one which is sterile. This should be kept in view, and the males separated from the hens at least ten days before beginning to save eggs for storage. An egg which is unfertilized when placed in an incubator, and kept at a temperature of one hundred and three degrees, will remain unchanged and fit for the table at the end of two weeks, while a fertilized egg, under similar conditions would either be two-thirds incubated or rotten. The difference in keeping qualities of the two kinds of eggs is equally great in a cool room, though not so rapidly manifested.

A third important point is to turn the eggs half over at least twice a week, to keep yolk from adhering to shell. If kept in a room where the air is cool, pure and dry, no salt, lime or chemicals are needed. The eggs may be placed upon racks, to which access is had for turning. But the difficulty with most cellars and even ice-cooled rooms is that eggs kept in them through hot weather, are liable

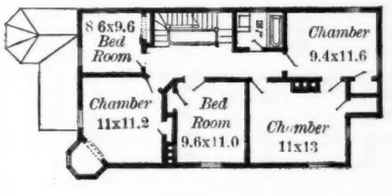


Fig. 3.—SECOND FLOOR PLAN.

to acquire a musty flavor. If packed in boxes with oats or corn, the boxes may be turned every few days, as indicated above.

SAVE THE ASHES.—Ashes are useful on all crops, and one can never have too many. An astonishing quantity may be secured by having a place to accumulate all rubbish, and burning in a dry time. Even weeds, if in seed, may be burned here, if only partly dry. After a burning collect the ashes, before a rain, and store under cover for future use.

The Banana in Florida.

R. W. REASONER, MANATEE COUNTY, FLORIDA.

The banana flourishes best in a very moist, rich soil, but will not endure standing water about the roots. The best possible location for a banana-patch is on the bank sloping down to a lake or "bayhead." The "springy" nature of the soil in such a location agrees perfectly with the roots of the banana, provided they are not planted far enough down to reach standing water. The preparation of the land for bananas does not necessarily involve thorough grubbing of new land, as on rich hummock or bayhead tracts, the simple cutting of the trees and undergrowth, and "budding" the palmettoes, is all that is really necessary. On rich new lands of this soil the plants may be set immediately after the land is cleared, with no other preparation. The palmetto tops, and most of the brush and logs may be left upon the ground—cutting up brush in the first place somewhat. All this rubbish will decay just about as fast as the roots of the plants need it, and much of it can be knocked to pieces in a few months with an ordinary hoe. The plants may be set then in true Honduras fashion, of which a friend gives the following *modus operandi*, in the words of a native: "In de fus place," said he, "we chops down de trees and burns all of dey tat we can; den we cuts de banana sprouts into pieces wid an ax and makes little holes vid a mattock about so far apart, (the distance illustrated by stretching out his long arms), den we chucks dem in, and *away dey goes*."

On such naturally rich land, a semi-annual clearing up with a sharp hoe, assisted by axe or hatchet, "machete" or bush-hook, will be all the cultivation they will need for years. On moist hill-side land that is naturally poor, the bananas will be greatly benefited by a very heavy mulch of grass and trash, renewed annually, and rarely disturbed, except to kill such weeds as sprout up through it. When cultivated on high, dry land, the banana needs different treatment, according to quality and character of soil, location and other circumstances. In Middle Florida, where the soil is all of a sandy character, the banana will succeed almost anywhere where a good corn-crop can be produced. Thorough preparation of the soil, fertilizing with commercial or home-made manures, and a heavy mulch (renewed annually) will usually produce good results. In a few rich and favored spots, among the ten thousand islands, and along the mainland of extreme South Florida, the banana is planted and cultivated exactly as a crop of corn is treated. The soil in these locations varies from a very rich shell hummock, to a light-colored clay and sometimes a black loam. We are not in favor of this mode of cultivation, as the banana is a surface feeder, and cultivation with hoe or plow, however shallow, will in every case take most of the roots, and retard the growth of the plant rather than hasten it. On the other hand, a heavy mulch all over the ground would keep down weeds, keep the soil underneath light and friable, and furnish fertilizing material as it decayed.

The nomenclature of the many different varieties and species of the banana is as yet considerably "mixed." The greater number of commonly cultivated varieties, however, seem to belong to the species *Musa paradisiaca*. In common parlance, the plantain refers to such of these fruits as are improved in flavor by cooking—the banana applying to those varieties which are esteemed best in the raw state. The following species and varieties are the most extensively known kinds.

I. *Musa paradisiaca*. The ordinary plantain or "Pisang," native of India, (and nowhere on the globe, according to Charles Kingsley and Dr. King, producing perfect seeds except in the Andaman Islands, in the Bay of Bengal,) is always propagated by suckers. The type of this species is the ordinary plantain of general cultivation in the tropics. The leaves are spotted when the plants are young. The full grown plant attains a height of ten to twenty feet, according to circumstances. The fruit attains a length of eight to fifteen inches, and a bunch usually has on it from forty to eighty "fingers" or fruits. Fruit improved by cooking, and a staple article of diet in the tropics. The plantain has been but recently introduced to Florida, and has not yet fruited in the State, so far as we know, except on Torch Key. The "Silk Plantain" is a local name for a superior Cuban variety.

Musa sapientum is the common banana, in its several forms. Of these, the most common in Florida is the "Orinoco" or "Horse" banana, known to the natives of Spanish America as "*El Bobo*," (by no means a complimentary name). This banana is one of the most hardy of all, and we see frequent clumps of it around the farm-houses of Columbia, Madison, and Baker counties, in North Florida, and indeed now and then as far up as South Georgia, though it rarely fruits so far north without some protection in winter. The fruit of this variety alone, of all edible bananas, cannot be picked green and ripened away from the parent stalk, and preserve its good flavor. The "Orinoco banana" in perfection must be ripened upon the stalk. A head of bananas that has escaped observation by boys and 'coons until the rich golden bananas are dropping from the stem from over-ripeness, is a "find" that the lover of fruit may well go into ecstasies over. Of course, this variety cannot be shipped, which renders its cultivation less profitable, except for local markets. The fruit is shaped like the plantain, though smaller, rarely more than six or seven inches in length, and with more sharply angular sides than most bananas.

Whether the "Red Jamaica" banana (also known as "Red Spanish" or "Baracoa") should properly be classed with this species or not, we do not know. It is of a taller growth than the "Orinoco," and forms a most magnificent plant in favorable situations, attaining the full height of twenty feet occasionally. The entire stalk and midribs of the leaves are of a rich wine-color; leaves are larger and of a more upright growth than those of the Orinoco; the fruit of this variety is the "red banana," so well known in the Northern markets. It is very prolific, producing bunches double the weight of those of the "Orinoco." As an ornamental plant, there is perhaps no other grown surpassing it in beauty, unless it be the "Abyssinian banana" (*M. ensete*).

II. *Musa orientum*. The "Lady-finger" banana, known in Florida as "Hart's Choice," "Golden Early," and sometimes "Cuban Red." This is a small, delicate, yellow banana, with very thin skin, is very productive, and ripens quicker after forming than most bananas do. It is said originally to have come from Abyssinia; it has been grown for many years in the West Indies and Bahamas, and locally on the South Florida Keys, but was first brought into notice in Middle Florida by Mr. E. H. Hart, of Federal Point, Florida's most enterprising pomologist. By him it was introduced from the Bahamas, and proving as hardy as the "Orinoco banana," and much more desirable, it has sprung into general favor. It is sometimes erroneously called the "Fig" banana, which, however, is an entirely different species. The edges of the stalk and midrib of the "lady-finger" variety are tinged with red, and the small plants never show the blotches on the leaves peculiar to some species. The plant is of dwarfish growth, usually averaging from eight to fifteen feet in height. The fruit is most delicious, and perhaps not surpassed by any other yet introduced.

III. *Musa Cavendishii*. The "dwarf" or "Chinese banana," (it also has been named by different botanists, *M. regia*, *M. Chinensis* and *M. nana*).

This plant is dwarf-growing only in height, for, while rarely attaining a height of more than eight feet, and often not over five or six, the stalk will sometimes measure a foot in diameter at the base, and will support an immense head of fruit, of from seventy-five to two hundred and fifty "fingers." The fruit is yellow-skinned, of fine flavor, and ships exceptionally well. The leaves of the young plants are spotted and blotched with red, as are those of the plantain, and some other varieties. This disappears as the plant increases in size. These bananas are favorites in cultivation along our lower coast and keys, on account of their short stocky growth, rendering them less liable to damage from hurricanes and high winds. It is somewhat more tender as regards frost, than the "Orinoco" variety. The plant seems to have reached Florida about twelve years ago from the Bahamas, and from the department at Washington, at nearly the same time.

IV. *Musa maculata*. The "Fig banana." This is said to be a small-fruited and delicious purple-skinned banana, the stalk of the plant showing black spots and patches. Fruit very spicy, and of excellent flavor.

V. *Musa Ducrea* is another dwarf species from China, which has been fruiting in European hot-houses since 1838. It is, however, little known in Florida. "Fruit small, averaging about four by two inches, flavor delicious. The red stripe on the foot stalk is broad, and a quantity of lime-like powder coats the stem and underside of the leaf." —*Whitner*.

These are the varieties most commonly known in Florida, though there are others, the identity of which is not well ascertained, and which are known by the following local names: "Chumpa," "Brazil," "Tahiti," "French Dwarf" (which last is undoubtedly synonymous with *Musa Cavendishii*), "Fall French," "Apple," "Silver-skin," "Rand," etc.

Harvesting and Storing Sweet Potatoes.

T. B. BALDWIN, TEXAS.

The sweet potato harvest should begin immediately after the first decisive frost. The vines are dragged off with an ordinary turning plow, barely letting it into the ground between the rows. After this the tubers are lifted with a potato digger. In the absence of these useful implements, the work can be done fairly well with a turning plow, though greater care must be used in picking up the potatoes, as the turning plow will cover up a good many.

The usual mode of putting up sweet potatoes in the South, is in banks or conical heaps, containing from thirty to a hundred and fifty bushels each; the smaller ones are picked out, and put in a seperate bank for seed. After piling up the crop evenly, the heaps are covered with a layer of dry cornstalks or other litter, and then with earth, which need not be more than an inch and a half thick at harvest time, but which should be gradually increased to four or six inches as winter advances.

Potato houses are used by some growers in preference to banking the tubers. When made with double walls, with sawdust well packed between the walls, the cold is effectually excluded. Such a potato house may be partitioned off into bins holding from twenty to fifty bushels each, in which the tubers can be stored away in dry sand.

When banking sweet potatoes, either in a potato house or under an open shed, it is very important to leave an opening of six or eight inches at the top of the bank for ventilation. Soon after being dug, potatoes seem to undergo a *sweating* process, which will cause rot if the air is excluded. In cold weather this aperture has to be closed with an armful of straw or hay.

TO KEEP THE WATER COOL.—There are many water-coolers and other devices for keeping water fresh and pure for the day's drinking, but none are of more real merit than the one described below. A common, unglazed, earthenware jar holds the water and is placed in a keg or small barrel, sufficiently large to give a space of four or five inches all around the jar. The intervening space is filled with nice, clean sand to within an inch of the top of the jar. A sufficient amount of sand should be placed in the bottom of the keg to raise the top of the jar to a level with the top of the keg. The sand is thoroughly wet once, after which the leavings from the dipper will keep the sand damp. When filled once a day, the jar will supply good water for drinking purposes all day. This contrivance, though simple, will furnish water nearly as palatable, and certainly much more wholesome than ice-water.

Breeding Dairy Cows.

HENRY STEWART.

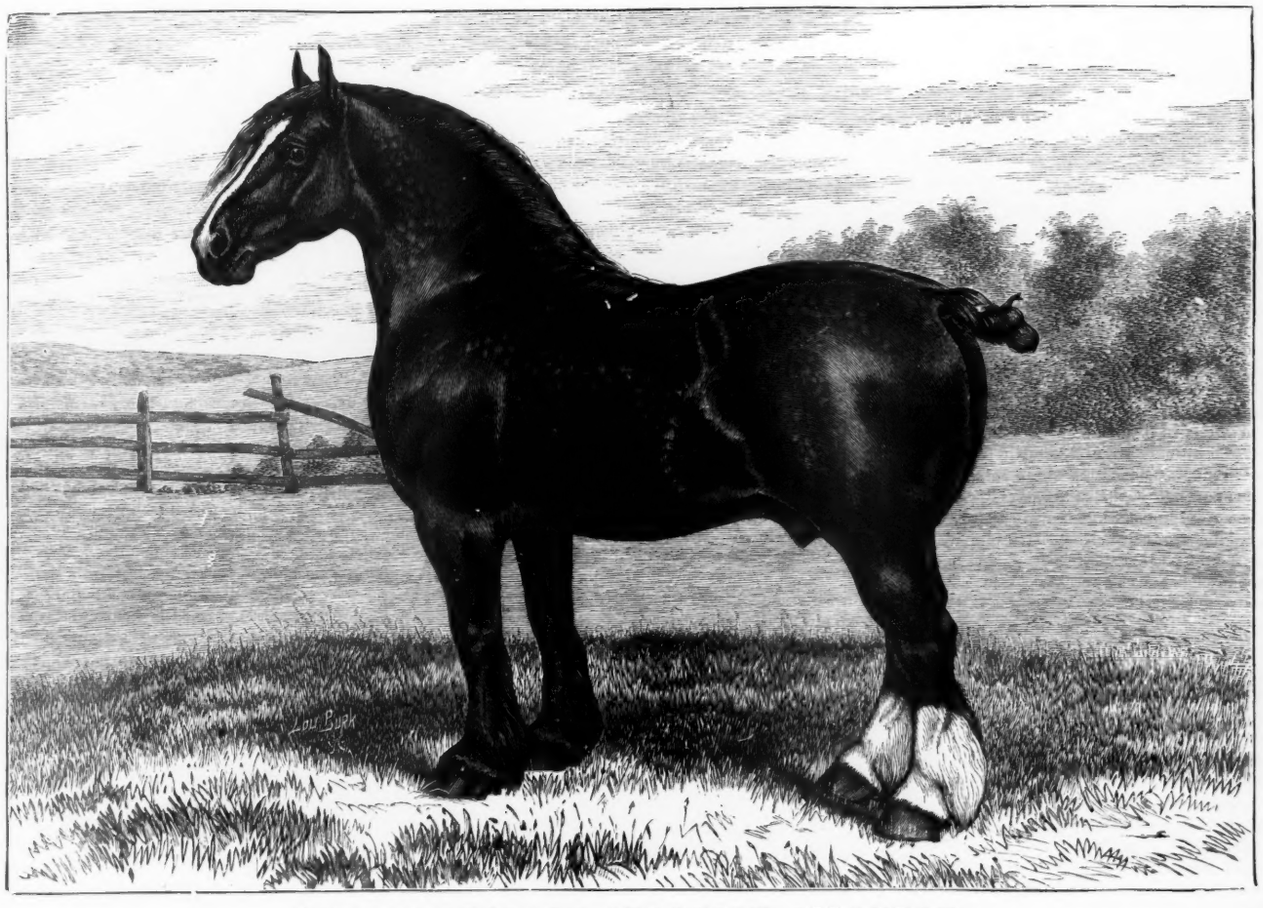
The art of breeding is governed by a few rules which are simple and easy to understand. The first and most important of these is that "like produces like," by which is meant that animals of certain peculiarities of form, color, character, disposition, habit, and quality, when bred together, reproduce their own characteristics in their progeny. This rule has been so uniformly and constantly proved by practice, and is so reasonable and natural, that it may be taken as a safe guide in the rearing of dairy cows. Every person may see it proved by practice every day of his life. There is more or less of family likeness in persons as well as in inferior animals. The progeny of a Jersey cow is always a Jersey, and the same is true of all other breeds. A good, rich milker produces calves that are good milkers, provided the bull is also of a good milking family. It is the fashion to assert that only pure breeds have this physiological power of propagating their own characteristics. All animals possess this power to some degree, however, and by a careful course of selection this natural proclivity may be encouraged, developed and strengthened, until the breed, as it is then called, has this power in an eminent degree, and the progeny partakes very closely of the character of the parents. This is the point to be aimed at by dairymen, who should first learn by careful tests which are the best cows, then feed them liberally to develop their qualities to the fullest extent, breed them to males of known hereditary excellence, and pursue the same plan with their progeny. The male should be selected from some pure breed, not hap-hazard, but after careful investigation of its antecedents, and especially, of its parentage. Milking quality is the only point to be considered, for this alone brings the profit desired. A dairyman should look to his special business for his profit, and never be induced to compete with professional breeders in the rearing of stock for sale. Hundreds of dairymen have been misled into disastrous losses during the progress of what might be called the Jersey speculation, during seven or eight years past, by purchasing at high prices animals belonging to certain families, which were popular at the time, but whose popularity was soon eclipsed by new favorites.

It matters not what breed is chosen. If it is the Shorthorn, the Holstein-Friesian, the Jersey, the Guernsey or Ayrshire, as good a bull as can be afforded should be secured. As a rule a calf should be purchased, and this may be safely done if the pedigree is right, and the milking quality of his dam and both his granddams has been found satisfactory. It is more profitable to pay a large price for a good animal, than a small price for a poor one. The bull is half the herd, as regards the calves, and more than that when it is procured for the purpose of improving native stock. The spare male calves may be easily disposed of to neighbors who are not so particular, or not so experienced in this respect, for some advance on the value of the common stock, and will in good part repay the cost of the sire.

Breed is undoubtedly dependent upon feed. Feeding and training has given the value to the breed, and this value must be kept up by feeding and training. The mistake is often made of getting a pure-bred animal and subjecting it to all the careless management which is given to the common stock, and expecting that this animal, by virtue of its parent's character, can lift up the common herd, and double or treble its value in a few years. Such a hope is doomed to disappointment from the outset. When a pure animal is brought into a herd, its care should be at least equal to that which it has been used to, and the very same system of feeding and general management should be followed with the whole herd. If this practice is carried out, the desired end will surely be reached.

Clydesdale Horses.

The Clydesdales have long been recognized as a leading and very valuable race of heavy draft-horses, but they were never bred to such a high degree of excellence as at present. The old type of Clydesdale, while massive and strong-limbed, was somewhat "light-waisted." But skillful and judicious breeding has produced an animal which may well be regarded as a model for a heavy draft-horse. They possess sloping shoulders, good limbs, well "feathered" around the fetlocks, well-sprung ribs, deep barrel chest, and muscular quarters. The extensive importation of these horses into the United States, has added an important element to the horse stock of the West, where they are highly appreciated. Great care is used, both in the land of their origin and in this country, to preserve the purity of the breed, and encourage breeding to the highest type. The stud-books of Great Britain and of America are conducted with the greatest care, to guard against the registry of any but pure bred animals. The respective associations of Clydesdale breeders in both countries, offer liberal premiums for annual competitive exhibitions. In this and other respects both associations have always shown a broad and liberal spirit of enterprise. We present herewith an illustration of a typical Clydesdale stallion. It is the imported horse Gilderoy (1438) of the British Clydesdale stud book, and 2826 in the American. He was foaled in 1878, bred by Mr. Duncan, of Banffshire, Scotland, and imported in 1886 by Messrs. Galbraith Bros., of Janesville, Wisconsin, who still own him. In Scotland he was a noted prize winner, taking no less than nine prizes at various exhibitions, and within a few weeks after landing in America, he was awarded first prizes in Madison and Milwaukee, and third prize in the great horse show at Chicago. He is a bay, marked in the face and over the pasterns, as shown in the handsome portrait given above.



THE CLYDESDALE STALLION GILDEROY.

Notes from the Pines.

John G. Saxe was once on his way to meet an appointment to lecture one evening; the engine of the train which was conveying him broke down, and there was no opportunity to reach the desired point until the next day. The audience assembled, and, after waiting for a long time with no lecturer, dispersed. Saxe sent a letter of apology to the lecture committee, in which he expressed his re-

Fig. 1.—JAPANESE SKIMMIA.

grets for having disappointed the people, saying: "I had every motive for going, except a locomotive." My gardening this past spring has been characterized by lack of locomotion. An ill-turn left me with a very useless pair of feet, and my gardening has been done from an arm-chair upon the veranda. I constituted myself "an army of observation," and while the work was slow, it was very effective, as it has consisted chiefly in observing the mistakes of former years, and in correcting them. One learns a great deal in this way, but the tuition is rather expensive.

BROAD-LEAVED EVERGREEN SHRUBS.

I have a great fondness for those shrubs with evergreen leaves, and in planting a rather large collection of shrubs, I included the few evergreen kinds known to be hardy, and many others, which would probably fail. Some evergreen shrubs are unable to endure our winters, but with many, the intense heats of our summers soon destroy them. I probably gained my fondness for broad-leaved evergreen shrubs from being so much among them on the Pacific Coast, which is a second Japan in its abundance of shrubs of this character. Perhaps many failures occur from lack of proper treatment at transplanting. There is no more beautiful shrub of this kind, than our native "Laurel" (improperly so called, as it is not a Laurel), *Kalmia latifolia*, also called "Calico Bush." It is very rarely seen in cultivation, and there is a general belief that it cannot be transplanted from the woods, but if we would have it in our grounds, we must get nursery-grown trees. We know of a great admirer of this shrub, who imported it from an English nursery, while it grew by thousands within a few miles of his place. Yet this shrub can be transplanted as readily as a willow, if one will, at transplanting it, cut it back to remove every leaf. This appears like severe treatment, but unless one will cut the beautiful shrub back to a naked stem, he had better leave it where it grew, for it will surely fail. Treated thus, success is as certain as with any other shrub. In due time the naked stem will "break," producing an abundance of new shoots, and by autumn will be supplied with abundant foliage. Having done this, and seen it done by others, it may be tried with full confidence of success. I have no doubt that other shrubs of this class, if on their removal from the nursery were treated in the same manner, would succeed more frequently than they now do. Yet few have the courage, when they pay a dollar, more or less, for a shrub, to mutilate it in this manner. Still, it is worth trying.

WHAT WE ARE DEPRIVED OF.

One, to appreciate how much of garden beauty we are deprived of by our climate, should visit English gardens, and those of Georgia, and others of our Southern States. In England he will see our Pacific Coast evergreen shrubs, growing in almost greater beauty than at home, and at the South, those shrubs and trees that can only be grown under glass at the North, are seen in great perfection. When every one says, as with the Laurel (*Kalmia*), "you can't grow it," I am only tempted to try, and with this feeling I planted a number of shrubs, perhaps to gratify the "I told you so" people, who are always ready to criticize one's garden. Within a few years since that country has opened commerce, Japan has enriched our gardens and greenhouses with many choice plants, including broad-leaved evergreen shrubs. Recently, also, several Japanese gardeners have visited us, who have shown a wonderful amount of intelligence and skill, and some Japanese books and periodicals show that while so long shut out from the world, they kept up an interest in horticulture and botany, and have produced works that command our admiration. Among other evergreen shrubs that I planted, was the

JAPANESE SKIMMIA (*Skimmia Japonica*).

There are about a half dozen species of *Skimmia*, natives of Japan and the Himalayas. They are much-branched shrubs from two to five feet high, with mostly lance-shaped, entire, thick, evergreen leaves, large clusters of small, white, usually very fragrant flowers, succeeded by small, bright-red berries. The name, *Skimmia*, does not appear to have been given an English equivalent. It is from the Japanese name *Skimmi*, which, in the Japanese language means "a hurtful fruit." The Japanese regard the fruit as poisonous, but though the species are planted abundantly in England, I have seen no reports of its dangerous qualities from that country. The engraving, fig. 1, gives a small branch, bearing flowers and fruit, of *Skimmia Japonica*, which was the earliest introduced into England, and is now the most generally grown. The few that I planted were in company with some low-growing conifers. They struggled bravely for a few years, but even with this protection there were none alive at the end of four or five years.

THE SALAL (*Gaultheria Shallon*).

Among the pleasures of child-life in the country, is the gathering of the berries of the Winter-green,

Fig. 2.—GAULTHERIA SHALLON.

or Checkerberry, and in spring the plant itself, when its delightfully aromatic leaves are young and tender. The botanical name of our miniature shrub is *Gaultheria procumbens*, its generic name being in honor of a Doctor Gaulthier, who lived in Quebec, over a century and a half ago. On the western coast, in California, to Oregon and northward, there is another species, much larger than our Eastern one, where it grows in the dense forests and throws up stems a foot or more high. The leaves are from two to four inches long, and finely serrate; the flowers are in panicles, white tinged with red, and succeeded by berries which are purple, or almost black. These berries have a very pleasant flavor, and are collected by the Indians, who knead them into a sort of loaf and

Fig. 3.—ADDER'S TONGUE FERN.

preserve it for winter use. The Indians met with by the early explorers, Lewis and Clarke, called the shrub *Shallon*, a name adopted by Pursh when he described the plant. Other Indians call the plant "Salal," a name generally adopted by the white settlers. This plant was introduced into England as early as 1826, and succeeds admirably, growing twice as tall as in its native country. It is largely planted as a cover for game; it affords shelter for the game, and at the same time abundant food in its berries. This is one of the shrubs that I planted, with the faint hope that, with the protection I could give it, an exception might be made in my favor, but they gave up after a struggle. Figure 2 represents a branch. But if evergreens have failed, there are many deciduous shrubs that have succeeded admirably. If asked, were I confined to a single shrub, which would I select, I think it would be

THE CHINESE, OR JAPANESE SNOWBALL (*Viburnum plicatum*).

This is as much superior to the common Snowball or Guelder Rose, as a fine rose is to a briar. I well recollect the delight with which our friend Trumpey hailed the first flowering of this shrub in the nursery where he is the distinguished propagator. His shrub was only two feet high, and had but two or three flower-clusters upon it. I happened to be with him when he saw his first flowers. Down on his knees went Trumpey, to get a nearer view. "Look at it," said he, "does it not seem to have an air which keeps all common plants at a distance, so select, so refined?" Trumpey was right. That is just the expression of the plant. Whether large or small, it seems to be complete, finished. The person who "laid out" this place, set the house ridiculously near the public road. To counteract this mistake, I planted a heavy belt of shrubbery along the fence, and this has grown to such proportions as to require cutting away some of the more dense shrubs, and give an outlook. To those who are disposed to plant shrubs along the road, I would say: Don't plant what bereabouts is known as "shrub," the local name for *Calycanthus*, "Sweet Scented Shrub," or "California Allspice." This "shrub" appears to be regarded as free plunder, and young and old will despoil it, breaking off every branch and twig that can be reached over the fence. Lilacs and the

Japanese Snowball are also freely plundered. I could have these persons arrested for trespass, but as their misdemeanor really arises from a love of flowers, which I have spent a good share of my life in trying to encourage, I have merely removed the shrub, and other attractive things out of reach, and when the trespassers are seen or heard, call out for the dog, an animal not tolerated on the place.

THE ADDER'S-TONGUE FERN.

In a shady end of one of the greenhouses, there have been planted from time to time such ferns as have been sent in, and such as have accumulated in various ways. There is, without effort, a fern garden of no mean proportions. Greatly was I surprised to find growing in this fern corner, a plant that was one of the troubles—the mysteries of my young botanizing days—"The Adder's Tongue Fern," *Ophioglossum vulgatum*, standing up there as defiantly as it did in a wild place many years ago. There was a club of us, of half a dozen members or so (alas, where are they now?) who met weekly to compare notes and specimens, and help one another as we might. On one occasion I brought a specimen of Adder's Tongue, *Ophioglossum*, which I had collected in "the grotto," a well-known locality, which was most thoroughly explored by the young botanists of the day. There was the specimen, and I declared that I had collected it in such a place. No such specimen had been seen there before, and careful search for many years after failed to produce one. After one generation of botanists had ceased to be active, a new generation sprung up. One of these new botanists came to me to show me his collection. As he opened his papers, there were Adder's Tongues by the dozen. "Where did you get these?" I asked; "Oh over in the Grotto, lots of them there." Here, in the place where my solitary specimen, twenty years or more before had exhausted the locality, there were "lots of them." This case illustrates the uncertainty of many plants. Not only do ferns come and go, but many of the orchid family are thus puzzling to the collector. I was glad to see this fern appearing thus unexpectedly in the corner of my greenhouse. It is by no means rare, but is so unlike in its appearance to most other ferns, that it is not usually recognized as one by those who meet with it for the first time. The engraving, figure 3, gives the general appearance of the common Adder's Tongue, *Ophioglossum vulgatum*, which is the Latin equivalent for the English name. The underground root-stock throws up a stem from a few inches to nearly a foot high, which bears a leaf-like sterile frond, and above this a spike bearing the spore-cases in two rows. This fern is found in the northern parts of this country,

THE UMBRELLA PLANT.

in Northern Europe, as well as in Russian Asia. The old herbalists, who ascribed medicinal virtues to almost every plant, pounded up the fronds of Adder's tongues in a stone mortar, and "boyled in oyle of olive," which gave a most excellent green oyle, or rather balsam, for "greene wounds," etc. PINES.

The "Umbrella Plant"—*Saxifaga peltata.*

In selecting several kinds which would show the great variety among the different cultivated species of Saxifrage (*Saxifraga*), we included *S. peltata*, in part because of its ample foliage and large size generally, and in part because it is one of the plants that California has furnished our gardens. We confess to being disappointed with this plant. Some one gave it the common name of "Umbrella Plant" on account of the shape of the leaves.

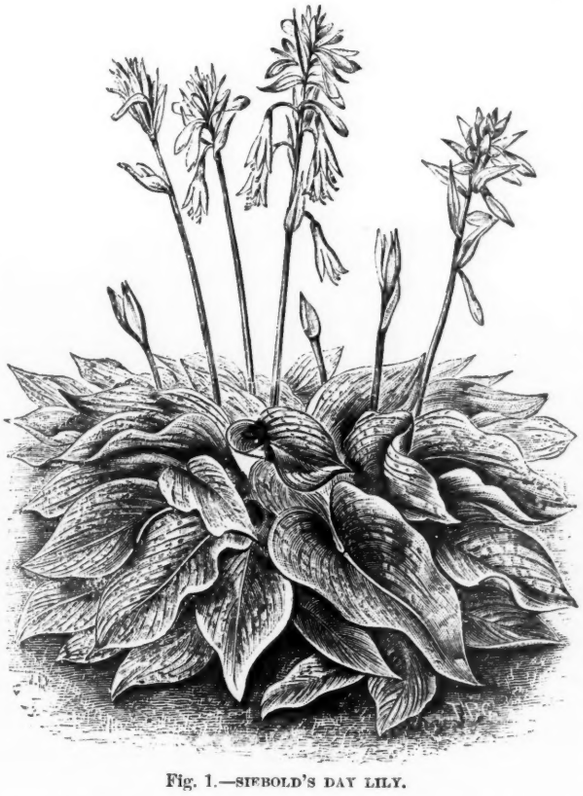


Fig. 1.—SIEBOLD'S DAY LILY.

Having associated size as well as shape with "Umbrella," we were disappointed when we first saw the plant, to find it so small. The engraving gives the habit of the plant, which is quite unlike that of any other species. Like most other saxifrages, it continues for a long time in bloom, and by the time its flowering is over, it presents a very different aspect from that at the beginning. The flowers begin to open when the flower stalks are but a few inches high, but by the time the flowers are fairly expanded, the cluster is upon a stem sometimes a yard high. The leaves which appear a little later than the flowers, are at first three to five inches across, but later are a foot or more broad and hollowed at the center. The flowers are white or pale pink. The Indians are said to eat both the leaf-stalks and flower-stalks very greedily. While this cannot be regarded as one of the handsomest of the Saxifrages, it is a picturesque plant, and should be given a moist place, as it is found in its native country on the margins of streams. It has a long, fleshy root-stock, and, of course, is a perennial.

The Day Lilies.—Funkias.

"Funk" is not a pleasing name, even when we know that it belonged to an "eminent German botanist." Latinize it into *Funkia*, and apply it to a genus of beautiful hardy plants, it is still reminiscent of mock auctions. But we can call the plants Day-Lilies, and leave *Funkias* to the botanists. There are a half dozen or more species of the Day-Lily, and all from Japan, North China and Siberia. There is some confusion of names among them, though the plants themselves are sufficiently distinct. We do not know of any plants that present so many claims to popularity as do the Day-Lilies. Being perfectly hardy and rarely attacked by slugs, insects or other pests, when once planted they require no other care, save when the clumps become too large, to divide them, which serves to propagate the plant in the simplest manner. The foliage in all is bold and of pleasing outline and color. The flowers are borne upon a stalk which rises from among the leaves to the height of one to two feet or more, the upper part of which is covered with pendulous lily-like flowers, from one to four inches long, and pure white or various shades of blue in color. Though the individual flowers are not very pleasing, the racemes whether remaining on the plant, or cut for vase bouquets, are very showy. Though they do not bloom until June and July, they keep up a succession of flowers all through the hot months. Another popular feature is the ease with which the Day-Lilies make themselves at home in all kinds of soils and situations. If given a deep, well manured soil, they will show how they enjoy it by greater luxuriance of foliage and more abundant and finer bloom. If set in poor soil, they will make an effort, and do what they can. They are among the plants which readily naturalize themselves in the wild garden, and on the other extreme, are grown in pots, for the decoration of the greenhouse or conservatory. The ease with which they are propagated, has much to do with the popularity of plants. In a town in New Jersey through which we occasionally pass, every door-yard has a perennial phlox and a chrysanthemum, all of the same variety, in singular uniformity. When the people "make garden" in the Spring, finding the clumps of these flowers too large, they are trimmed by cutting away a portion of the roots; neighbors gladly accept these trimmings, and thus the front yards of the whole town become planted with the same plants. In a large town in Connecticut, we noticed that each door yard had a large clump of a white-flowered Day-Lily, with as much regularity as if required by law. There is a form of Day-Lily with leaves marked with white, which is very ornamental. The dark green leaves have several bands of white running their whole length, making it one of the most effective of plants with variegated foliage. One of the best of the Day-Lilies is Siebold's (*Funkia Sieboldiana*) fig. 1. The foliage is ample; the flowers, ten or fifteen in a raceme, are white with a bluish or lilac tinge. One of the most generally cultivated is the Subcordate Day-Lily (*F. subcordata.*) The form of the leaves is shown in fig. 2; the flowers, which stand up higher than is there represented, are upon stems one to two feet high, are pure white, pleasingly fragrant and produced in constant succession. This is also known as *F. Japonica.* A species very common in cultivation is *F. ovata*, (often in the catalogues as *F. cærulea*),

Fig. 2.—FUNKIA SUBCORDATA.

has fine violet-blue flowers. All the species, whatever the name under which they may be met with, are most valuable and useful plants, and should have a place in every flower-lover's garden. The name "Day Lily" is also applied to two species of *Hemerocallis*, lily-like plants, with long, narrow leaves, and yellow and orange flowers. These have escaped from gardens, and became weeds.

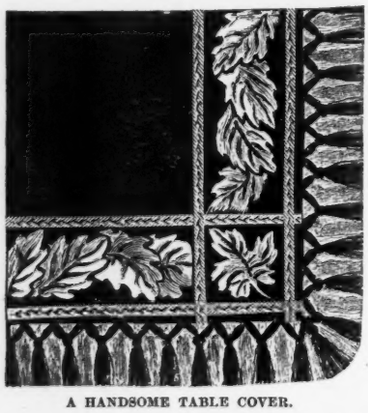
Bringing Up Children Rationally.

It is as natural to a child to be happy, as it is to a fish to swim. But for this they need a certain amount of "letting alone." It is a great mistake for parents to hamper their children with foolish restrictions. We pity the little B's, our next-door neighbor's children, from the bottom of our heart. There is a picket fence in front of the house, and they are scarcely allowed to go near it, lest they should climb and hurt themselves. They cannot climb a tree for the same reason. They may not skate or swim, or have a gun. The consequence of this training is that their parents have made cowards of them all, with the exception of little Bessie, who is the most daring little mischief that ever wore a sunbonnet, and she has learned to be deceitful and plays all her mad pranks well out of sight of her parents' eyes. We caught her the other day walking the railing of a bridge that crossed the track of a railroad a hundred feet below. The railing was not a foot wide, and she triumphantly told us that she had walked it while the train was passing under. It was enough to make one shudder.

Don't fancy your boy is made of glass. Grant a reasonable request, and let him feel that when you refuse, it is for his own good. Between the Jellybys and the Gradgrinds of life, children have a hard time of it. The youngest child needs some sort of agreeable occupation, and a certain amount of physical freedom. There is nothing more painful to young people than to feel that life is one dull routine, and that "nothing ever happens," as we once heard a disconsolate lad remark.

A Felt Table Cover.

A cover made of mauve felt for the dining-room table when not in use, is shown in the illustration. The border of leaves is cut out of several shades of brown felt, and fastened on with crewels a few shades darker. Narrow bands of the light felt are caught down with a row of herring-bone stitch, done in the crewels. It is finished on the edge with worsted fringe to match the cloth in color. A very pretty fringe can be attached directly to the cloth, if preferred, by leaving several inches of the felt below the band of leaves. This is cut into



A HANDSOME TABLE COVER.

strips a quarter of an inch wide to form the fringe. A strip of the brightest shade of brown should be cut in the same manner, and sewed under the dark fringe.

A HANDSOME TIDY.—This may be made from a piece of lace grenadine a yard and a half long and half a yard wide. Hem the sides and ends, and draw the threads in five rows across the ends, wide enough to admit of half-inch ribbon, which should be run in and out. Let the first be old gold, next black, cardinal, pale blue and olive, or any other arrangement of colors that may strike your fancy. Finish the ends with tiny little silk balls of the same colors as the ribbons, put on about an inch apart. Tie in the center with a bow of wide pale blue, olive and gold ribbon.

A Convenient Paper Pocket.

A pretty and serviceable receptacle for newspapers and magazines may be made of an ordinary wire broiler. Break or cut off the short handle, wind wide silk or satin ribbon all around the frame,

A CONVENIENT PAPER POCKET.

and cover the remaining handle. Then braid ribbon of another color in and out, across the wires of the front part, and the sides of the back, leaving the remainder plain. Pull the ribbons tight around the corners at the bottom, and as they are worked upwards, gradually leave them looser so as to form a wedge-shaped pocket. Fasten a bow made of the same ribbons to one side of the front, and another over the ring on the handle.

Ornamented Chairs.

Willow chairs, so convenient for summer use, can be made quite attractive with the aid of bright plush. The one seen in figure 1 has pads made to fit the seat and back; these are covered with terra cotta plush. The peacock feathers are embroidered on in their natural hues with silks. These pads are tacked on with gimp and brass-headed nails. Bows of satin ribbon are tied on the front legs to match the plush in color. The rocking chair, figure 2, has a crescent-shaped head-rest made of peacock-blue plush, tied on with ribbon the same shade. Willow chairs that have become discolored can be made to look like new, by staining them to imitate cherry; they will need several coats, and lastly a coat of varnish. A friend showed me one she had treated in this maner, and it was by far the prettiest chair in the room. It was trimmed with blue, which harmonized beautifully with the cherry.

Midsummer Fashions.

It is the season of the year when there is a lull in the advancement of decided new fashions, but there are a hundred and one little things which make the difference between a well-dressed and ill-dressed woman, while in country places marked interest is shown in costumes for special occasions. Dress goods were never cheaper, a remarkably pretty and inexpensive traveling dress may be made of the small checked or striped homespuns, or the neat shepherd's plaids, which are always refined and ladylike. The basque is perfectly plain, but is often made up bias in part or throughout, with a fly-front fastened by hooks and eyes. If buttons are preferred, they should be of dark bone, either flat or in tiny balls. The skirt is laid in box-plaits, and has a slight apron-drapery. If the suit is dark-blue, a Suede or tan-colored vest set in is considered very stylish. Traveling hats should be small, with close, velvet-covered brims, and simply trimmed with ribbon bows in front.

English tailors are bringing out most elaborate costumes for yachting, with waists of washing silk, brilliant with gilt and silver, but a plainer gown, that will be pretty and useful for boating at the sea-side, or for mountain wear, is formed of plain navy-blue and white serge. The lower skirt is of the white, quite full, with a four-inch band of blue around the bottom. The waist and over-skirt are of the blue serge, the latter being pointed in front, and the back breadths draped in Arab folds. The bodice is a plain basque, pointed both back and front, and edged all around with a narrow piping of white. The neck is cut in V-shape, with a rounded shawl-collar, and with it is worn a percale chemisette, and a sailor tie of blue or white foulard. Cuffs should match the chemisette, and the hat be either a rough straw in sailor shape, or a cap made of the dress goods. These last are quite new in this country, and resemble a cricketing cap, having a soft, gored crown in six or eight pointed pieces, and a stitched visor, the crown falling forward on the visor. Gilt or silver braid covers the seams between the gores.

For riding, black habits have still the preference, but very dark-blue or green are often worn, and brown and gray are occasionally seen. The English style of making is still in vogue, with its glove-fitting postilion bodice, short, scant skirt and trousers, but instead of the basque being high at the throat, the rolled, notched collar is now used, showing a white linen chemisette and small lawn tie. A scarf-pin is the only jewelry allowed. The hair is braided and wound in a close coil just below the hat-brim. A high, black silk hat, with a moderate bell-crown, a light derby, or small velvet jockey cap is the proper head-gear, and for gloves, a fancy is shown for dark tan-brown, heavily stitched on the back, and fastened by four large buttons.

Street suits are about as we have already recorded them, but small mantles to match are now often added. With the present style of dress, steels in the back of skirts are a positive necessity, and as the stylish effect of the whole costume depends upon their proper adjustment, we copy, for our readers' benefit, the latest directions given by an authority on such matters: "The number of steels used varies from two to five, according to the height of the person. For a moderate tournure, the latest arrangement is as follows: Two steels are required, one measuring twenty-seven, the other thirty inches in length. To accommodate these, two casings are sewed across the back-breadths and side-gores, commencing twelve

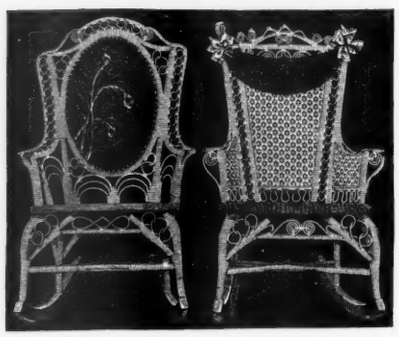


Fig. 1. Fig. 2.

inches back on each side from the middle of the front, the upper casing seven inches below the belt in the middle of the back, and eight at the ends, and the lower casing just the same distance below the upper one. After the steels are inserted, the fullness on them is to be pushed back five inches from each end and secured, so that it cannot slip forward, and on the inside of the skirt, when the fullness is secured, tapes are to be sewed—those on one side elastic—to be tied behind the figure, to retain the steels at the desired size. In order to have the skirt hang properly with this arrangement,

it should be cut two and a half inches longer in the back than in front. The increased length of the steels does not increase the size of the tournure, but by sewing the inner tapes back from the ends, the ends are allowed to rest flatly against the sides of the figure, instead of curving in." A small pad of horse-hair is worn above the steels.

A new feature of summer shoes is the length of the vamps. Oxford-ties that can be worn in the street with black hose are a boon in warm weather, and the latest are laced high up on the instep, and have long vamps, patent leather tipped toes, low, common-sense heels, and wide, hand-sewed, welted soles.

Large hats to wear with light gowns are most picturesque, curving upward over the forehead, drooping on the right side and rolling on the left to the middle of the back, where the brim is pointed against the crown. They are most becoming faced with dark velvet, and may be trimmed with ribbons, point d'esprit, or the tissue veiling, which is so soft and fleecy, with a bunch of apple blossoms, roses, wistaria, or bright-yellow jonquils, nestling among the folds.

The Beecher Swinging Chair.

Our illustration shows the appearance and construction of a swinging chair which was a favorite seat for Mr. Beecher, at his country place. The sides are of inch boards, five inches wide in the broadest parts, and about four feet long. Inch holes are bored in the ends, in which are secured round, smooth sticks of ash or other hard wood. The seat and back are of barrel staves strung on a

BEECHER'S SWINGING CHAIR.

piece of common clothes-line, the ends of which are tied around the lower cross-piece. A piece of similar cord is secured by its ends to the side pieces, as shown in the engraving, and the whole suspended by a piece of stout rope from the limb of a tree from the veranda, or the ceiling of a sitting room.

Knitting.

A PRETTY NARROW EDGING.

Materials: Real Scotch linen thread, No. 60; two steel needles, No. 17 or 18.

Cast on 14 stitches, knit across plain once. First row—Make 1, 1 plain, make 1, 2 plain, narrow, narrow, 2 plain, make 1, narrow, make 1, narrow, 1 plain. Second row—All seamed. Third row—Make 1, 3 plain, make 1, 1 plain, narrow, narrow, 1 plain, make 1, narrow, make 1, narrow, 1 plain. Fourth row—All seamed. Fifth row—Make 1, 5 plain, make 1, narrow, narrow, make 1, narrow, make 1, narrow, 1 plain. Sixth row—All seamed. Seventh row—Make 1, 3 plain, narrow, 2 plain, [make 1, narrow] three times, 1 plain. Eighth row—All seamed. Commence at first row.

WIDE KNITTED EDGING.

Materials same as above. Cast on 40 stitches, knit across plain once. First row—3 plain, narrow, 2 plain, make 1, 1 plain, [make 1, narrow] twice, make 1, 2 plain, narrow, 4 plain, narrow, 2 plain, make 1, 1 plain, [make 1, narrow] twice, make 1, 3 plain, narrow, 2 plain, make 1, 1 plain, make 1, narrow, make 1, 1 plain. Second and all even rows—Seamed across. Third row—2 plain, narrow, 2 plain, make 1, 3 plain, [make 1, narrow] twice, make 1, [2 plain, narrow] twice, 2 plain, make 1, 3 plain, [make 1, narrow] twice, make 1, 2 plain, narrow, 2 plain, make 1, 3 plain, make 1, narrow, make 1, 1 plain. Fifth row—1 plain, narrow, 2 plain, make 1, 5 plain, [make 1, narrow] twice, make 1, 2 plain, narrow, 2 plain, make 1, 5 plain, [make 1, narrow] twice, make 1, 1 plain, narrow, 2 plain, make 1, 5 plain, make 1, narrow, make 1, 1 plain. Seventh row—6 plain, narrow, 2 plain, make 1, narrow, make 1, 1 plain, make 1, 1 plain, make 1, [2 plain, narrow] twice, 1 plain, narrow, 2 plain, [make 1, narrow] 3 times, 5 plain, narrow, 2 plain, make 1, narrow, make 1, narrow. Ninth row—5 plain, narrow, 2 plain, [make 1, narrow] twice, make 1, 3 plain, make 1, [2 plain, narrow] twice, 2 plain, [make 1, narrow] 3 times, 4 plain, narrow, 2 plain, make 1, narrow, make 1, narrow. Eleventh row—4 plain, narrow, 2 plain, [make 1, narrow] twice, make 1, 5 plain, make 1, 2 plain, narrow, 2 plain, [make 1, narrow] 3 times, 3 plain, narrow, 2 plain, make 1, narrow, make 1, narrow.

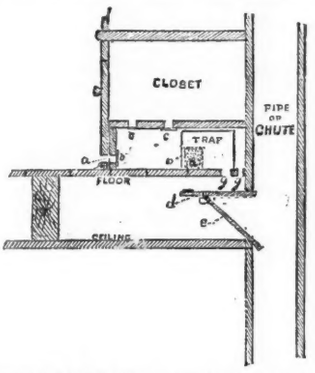


Fig. 1.—CROSS-SECTION OF RAT-CATHING APPARATUS.

A Wholesale Rat and Mice Destroyer.

The accompanying engravings illustrate a somewhat complicated, but not expensive apparatus for keeping a house clear of rats and mice. Figure 1 is a sectional view, showing the arrangement. The pipe or chute is of inch boards, and it extends from the basement to the top-story of the house. The box shown in the engraving is fitted into the lower part of the closet. A hole, *a*, through the side of the closet, with wire gauze inner door, *b*, is for the entrance of the "victim." Once inside his attention is drawn to the trap, and he enters through the hole, *a*, guarded by a door of wire netting which opens inwardly at a touch. As soon as the imprisoned animal tires of confinement, he naturally makes his exit through the hole, *g*, which seems to him to have been very carelessly left in the bottom. He drops directly upon the tilting board, *d*, which is very nicely balanced by a counterweight, attached to the left-hand end. The weight of the rat

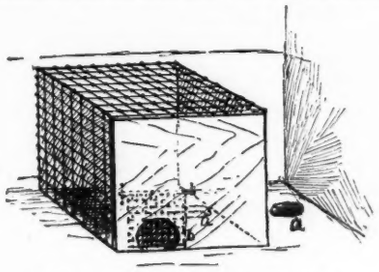


Fig. 2.—PERSPECTIVE VIEW OF TRAP.

or mouse instantly tips the board downward to the support, *e*, and the animal slips off the lower end into the chute, and tumbles to the bottom. But not every rat will walk through the trap to his doom. Some sly old veteran may enter the box, and then keep discreetly out of the trap. He climbs over, finds the hole, *g*, behind it, through which he goes, chuckling over his superior sagacity, and the next moment follows his thoughtless kindred down the narrow path from which there is no return. Provision is also made for animals which are too knowing to enter the box at all. Some of these, in their nightly scamperings between floor and ceiling, are attracted by the savory odors from the closet over their heads, and jump up to the inner end of the tilting board, *d*. Another step and down they go like the others. On the top floor the tilting board is just over the top of the chute.

Figure 2 shows the trap in perspective. The ends are of boards, the sides and top being covered with a single piece of wire gauze.

Figure 3 shows the lower end of the chute. It terminates about thirty inches above the floor, and immediately beneath it is set a box of sheet iron, resting upon the cellar bottom. The metallic box at the lower end of the chute is readily removed, to dispose of the rats or mice. The trap box and tilting board apparatus may be repeated on each floor. The two traps from one of which our artist has made the illustrations, run through five stories, and have caught in twelve months over three thousand rats and mice, being equally effective for both. This is the invention of one of our subscribers in this city, who, instead of applying for a patent, contributes it for the benefit of his fellow subscribers. We recommend its use to all house-builders. While, of course, the trap can be constructed with little expense when the house is built, it can be adjusted in houses already erected without much cost, either

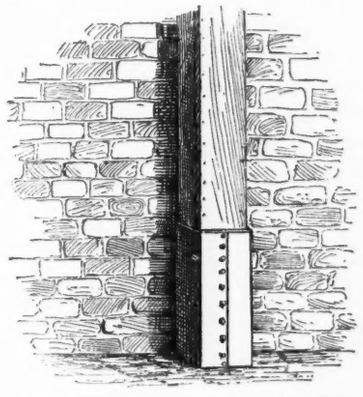


Fig. 3.—LOWER END OF (TRAP) CHUTE.

by yourself or a carpenter. If any subscriber does not fully understand the invention and its construction from the designs given, send for further particulars, and we will cheerfully forward them—only, however, to subscribers.

SUMMER SALAD.—Slice one cucumber and six small tomatoes into the thinnest of slices. The cucumber should lie in salted ice-water for an hour before dinner. You will pare it of course, but leave the skin on the tomatoes. Cover with a dressing made of one tablespoonful of vinegar and two of salad oil, with a little salt and pepper.

TOMATO OMELET.—Beat four eggs, with two tablespoonfuls of milk or cream, and a little salt and pepper, just enough to break the yolks thoroughly. Put a tablespoonful of butter in the frying-pan, and when hot, pour in the eggs with a circular motion of the wrist so as to send the mixture evenly over the pan. Stir lightly with a broad-bladed knife until the eggs begin to "set" or thicken, and then spread over the surface three tablespoonsfuls of tomatoes, that have been peeled, cut in small dice and drained. Season lightly, fold the omelet, and dish. A most appetizing breakfast with broiled or fried ham, and hot muffins. Another way is to put some stewed and thickened tomatoes on the omelet just before folding, and still a third is to pour a strained and thickened tomato sauce around a plain omelet immediately after it is dished.

Her First Cruise.

The Crystalline was a beauty; there could be no two opinions about that. Her builders were proud of her, and did not mind saying so, for a real lake captain had declared that, considering their own youthfulness, there was not a neater little craft afloat on all Lake Ontario. So the day she was launched, a large throng of admirers stood on the pier, and loud cheers arose as eighteen-year-old Capt. Jack Dayton stepped on board, and dashed a glass of lemonade across her shapely bows. Early next morning, the Crystalline shot out into the harbor, and, spreading her snow-white sail, glided past the long line of shipping which thronged the wharves, under the bows of huge three-masted schooners, and then, after gracefully rounding the end of the narrow sand-bar, she found herself rocking, for the first time, on the broad bosom of Lake Ontario. A fresh breeze was blowing from the west, the sky was blue and cloudless, and the sun-light glistened on the spotless white paint of the little craft, and on the gilded letters of her name, which floated on the scarlet satin burgee at the masthead.

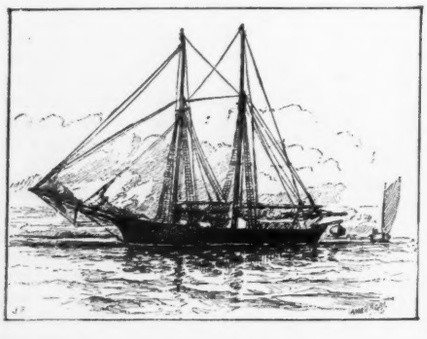
Gradually the city dwindled and faded in the distance, the tall trees disappeared on the hills beyond it, and then to the east and west the waters seemed to rise and fall against the sky, while on the south the shore was a dim outline.

"Isn't this jolly?" said Capt. Jack.

"Isn't it, though?" echoed the crew.

The captain then glanced at his watch, arose from his place at the helm, and taking a spy-glass from a locker, peered round the horizon with an air of wisdom. Then he looked carefully at the barometer, thermometer, and compass, and these duties performed, opened the locker which contained the lunch. Half an hour later the entire crew of the Crystalline, including the big dog Victor, were taking a noon-day nap. No one would have thought that danger and excitement were in store for that peaceful group. The scarlet flag at the masthead was fluttering gaily, and far-off along the horizon rose a ridge of soft white clouds that looked as if a giant had been busy beating the whites of a million eggs, and piling them up together.

Now the sound of music came over the water, and the boys roused themselves to look at the



NEARING THE SCHOONER.

great Niagara steamboat which was passing them. Some of the passengers looked at the Crystalline admiringly, a brass band was playing on the forward deck, and with a great splashing and rush, the steamboat passed on, her big wheels leaving a broad path of foam behind. Up and down rocked the little sailboat merrily on the steamer's swell, and then there hove in sight a great schooner and, presently, a line of well-laden fishing smacks, with nets hanging on the yards to dry, while the fishermen lounged and smoked after their work, and hailed the boys with a laughing "ship ahoy!" When all had passed out of sight, Jack said suddenly:

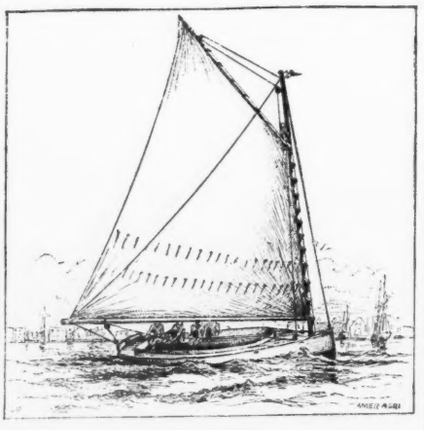
"We must write down, in a book, all the adventures that we have in the Crystalline."

"Yes, and keep it forever!" said the others.

Wishing, however, that the adventure would begin at once, Bert Dickson looked round him through the spyglass, and at last exclaimed, "There's something! What can it be?" and handed the glass to the others.

"It has two masts, but the sails are furled—it seems to be drifting!" said Jack.

They drew nearer, and found that the strange



THE CRYSTALLINE.

object, a small schooner, was indeed adrift, and not a person could be seen on board.

"Abandoned!" cried one.

"A wreck, perhaps," suggested another.

"Let's board her," said a third.

They hauled down their sail and went alongside as close as they could, and Capt. Jack caught sight of two rough-looking men, fast asleep on the deck of the vessel, with a small whiskey keg between them.

"They are stupid and helpless with drink," he said, "and they will be swamped, for there's a storm brewing," and he pointed to the gathering clouds in the west.

"Hark!" said Bert suddenly, "what was that?"

They all listened eagerly, and, after a minute, heard a cry—a child's voice, unmistakably—from the drifting schooner. Steve jumped up in wild excitement, "Do you know, fellows, what that is?" he cried.

"What?" said the others, breathlessly, and Steve replied in a solemn whisper, "It's Mr. Deane's little boy, Jamie!"

"The one who was kidnapped last week?" said the others, starting up as Steve had done.

"Of course," said Jack, "and those are the thieves. We must go and have the baby!"

All wanted to go directly, but Jack exerted his authority, and in a few minutes his plans were made and explained. Frank and Bert were to stay on the Crystalline, Jack and Steve, with the dog Victor, were to board the schooner and bring away the captive. There was not much danger of awaking the thieves, they slept so soundly, still no time must be lost. After a good deal of pulling, the Crystalline was put so near the other boat, that the boys were able to leap on board, followed closely by the Newfoundland. To step noiselessly over the sleeping men, and lift out the crying, frightened child, whom Steve recognized at once, was but the work of a few moments. Victor watched the proceedings with the greatest interest, and when Jack told him to take the baby to the other boat, he wagged his bushy tail, barked delightedly, and sprang overboard with the child grasped firmly by its clothes. At the same time Steve and Jack, seeing that one of the men was stirring, leaped into the water. When they were all safe on board the Crystalline, and were busy drying the little fellow's clothes as best they could, and feeding him from the well-filled locker, they heard an angry shout which warned them to be off for land.

"They're coming!" said Bert. "Look, they've got their sails up, and, if they catch us, they'll kill us dead!"

"They wont catch us, though," said Capt. Jack calmly, as the Crystalline went bounding over the water. On, on she scudded, like a white winged bird, her pursuer coming steadily after. The men shouted threats of vengeance to the boys, and though their words hardly reached the latter, it was evident that the robbers were determined to get back their booty. An hour passed, and the chase kept up, but there was a change coming over the scene. The milk-white clouds on the horizon had become a dull grey, and had risen and spread along the sky, hiding the setting sun; the wind lashed the water furiously, and the white-caps grew whiter every minute.

"The storm's coming," said Jack, and in another half-hour the clouds were black as ink. These kept gathering from every part of the sky, like troops forming for battle, and lower and lower they settled, while the leaden looking waves rose and fell. On, on flew the boats; the larger one gaining on the Crystalline. The crews were so intent in watching each other that little heed was given to the weather and the air became more heavy and moist, the rain clouds grew and grew, and all the time kept creeping down nearer to the world. Suddenly a huge black column reaching from water to sky was seen, slender in the middle, spreading at top and bottom, quivering, writhing, swaying—the wave and cloud had met.

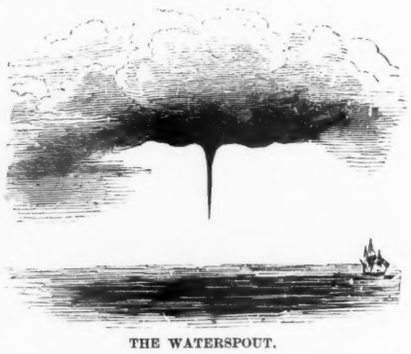
"A waterspout!" cried Jack; and a cry of terror broke from Bert, the youngest of the crew.

They were nearing the land; already they could see the trees and houses on the shore, but the thieves' boat was bearing down on the Crystalline, and in the bow stood a man with a cocked pistol. The next instant a bullet whizzed over their heads. A clap of thunder sounded, a flash of lightning ran zigzag along the clouds, and both boats seemed about to be engulfed in the heaving water. They quivered and quaked in the furious gale, which suddenly tore the waterspout from its base, and waved aloft its ragged edges. The Crystalline spun round and round, the oars snapping off short; a mighty wave lifted her, as if she were a nut-shell, swung her on high for a minute, then, with a swift dash and swoop, and a sudden jolt, tossed her on shore. The boys were out of her in a minute, and it did not take long to draw her high up on the gravelly beach.

"Where are the thieves?" cried Frank, for the robbers' boat was nowhere to be seen.

In that wild commotion of waters, a plank had broke loose and gone out of her stern; she quickly filled and was seen no more.

Through the driving rain and wind, the four



THE WATERSPOUT.

boys, the baby, and the dog went hurrying to town, and a little later, the three-year old was clasped in his mother's arms, while Jack and his crew stood modestly relating their adventures to Mr. and Mrs. Deane. They refused to take a reward, but the sum of a hundred dollars was put in bank for each of them, and Jack did not forget to write down in a book an account of the Crystalline's first cruise, and the rescue of the child.

The Doctor's Talks.

There is a case, with a glass front, in my "den," (as my study is called by the household,) in which all sorts of odds and ends find a home, under the general term of "curiosities." When young folks come to see me, which I am glad to say they often do, they find much to interest them among the contents of this case, and many a "What is it?" I am called to answer.

"VEGETABLE IVORY" OR "IVORY NUTS,"

was the answer to such a question, a few days ago. "What kind of tree does it grow upon?" naturally followed. Here, just in time, comes an illustration from a new book on the "Families of Plants," to be published in numbers. The engraving interested the two boys so much, that I have reproduced it here, so that other boys, and perhaps girls too, may be interested in the plant, which takes the place of the elephant, and produces ivory. There are many natural products which we get from both plants and animals, that serve us for certain uses better than any substance that we can make artifically. Take for example cork. Nothing has ever been invented that will answer for the many uses to which we apply cork, and there are a great many besides stopping bottles great and small. Glass makes good stoppers, for some uses, and India rubber serves in some others, but for a general stopper, for all sorts of bottles, and for all kinds of liquids, there is nothing so generally useful as the bark of the Cork Oak. So with ivory among animal products. There are many uses for which ivory appears to be just the thing. As population and civilization increase, the demand for ivory becomes greater—indeed, increases much more rapidly than the supply from elephants. About forty years ago there appeared in the markets of this country and Europe, "Ivory Nuts," curious nuts, the "meat" of which was so white, fine-grained, and hard, that it could be used in place of ivory, and could not be readily distinguished from it. But as these nuts were only about as large as an unripe black walnut, they could only be used in place of ivory for very small wares. Still "ivory nuts" were bought, and used for a long time, before it was known what plant produced them.

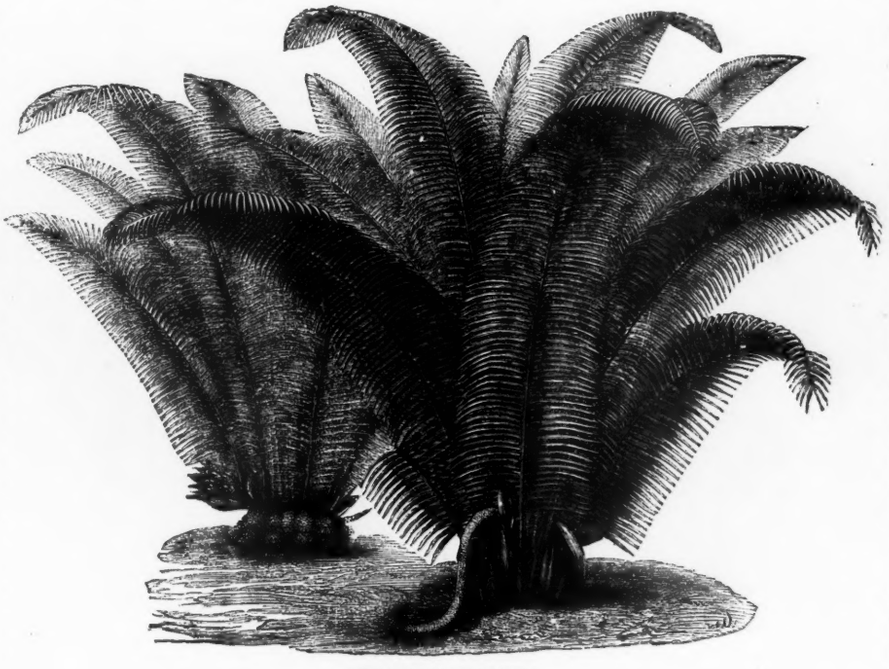
WHERE DO IVORY NUTS COME FROM?

Before I tell you that, I must first tell you about another substitute for ivory, which is made artificially, and is the result of wonderful chemical discovery not many years ago. This substance is called *celluloid*. It is in appearance like ivory, and may be made into articles as large as may be made of ivory. But the process of its manufacture is a dangerous one, and as it is much like the violent explosive, gun-cotton, it is not yet known how far it may be safe to bring it into general use. But so much has already been done, that it is not improbable that a complete substitute for ivory, resembling that in its safety, as in other qualities, may yet be found.

Ivory nuts, as I have already said, were in commerce for some years, before it was ascertained what tree produced them. When the plant was discovered, it must have a name, and the botanist very properly named it *Phytelephas*. The name being made up from the Greek words, meaning

THE ELEPHANT PLANT.

At first it was thought to be a palm, but it differs in some important points from the palms. It is given a family all by itself, which, though related to the Palm Family, is the "Vegetable Ivory Family," or in botanical language the *Phytelephasiæ*, a rather long word for so small a family. The ivory nut trees are found in the northern portions of South America, along the rivers of New Granada, Peru, etc., that come down from the mountains. The engravings show you the general appearance of the trees. The trunks rise but a short distance above the surface, indeed are often entirely below. Its leaves, from twenty to thirty feet or more long, form a magnificent tuft, each leaf beautifully divided like a giant feather. The pistillate or fertile flowers, and the staminate or infertile flowers, are on separate trees. These staminate flowers are crowded on short stems, as seen in those snake-like objects on the nearest tree. The fertile flowers are followed by large capsules, or fruits, as large as a man's head, very rough on the outside, and containing about forty nuts, as large as a full-grown black walnut. The nuts themselves, have a



THE ELEPHANT PLANT.

thin, brittle crust, when ripe, but when young are filled with a soft pulp, which the natives eat in that state. This hardens as the nuts ripen, and when quite mature becomes as hard as ivory. The nuts require no other preparation than to knock away the outer shells, and to gather them up. They are sold by the hundred. The trees are sometimes to be seen in cultivation, in large conservatories, where they are conspicuous ornaments.

CAN YOU SWIM?

I do not ask the boys, only, "can you swim?" but intend it for the girls also. Leaving out the matter of bathing, and the excellent sport it affords a good swimmer, every one should learn to swim, or at least to be able to sustain himself for some time in the water. Many refuse to travel by water, and avoid sailing for pleasure, through fear of accidents, knowing that if once in the water they would be utterly helpless. For this reason, if for no other, I think that all should learn to swim, and the time to learn is while young. Every youngster of twelve or fifteen, and as much younger as may be, should be able to swim; the art is easily learned, and when learned, need never be forgotten.

THE PLACE IN WHICH TO BEGIN.

The toper who was told that he should drink water instead of liquor, replied: "Water is an excellent thing; without it navigation would be impossible." Water is the first thing to be considered in swimming. This is such a well watered country, that one need not go very far to find a suitable stream, pond or lake in which to swim, while those within reach of the sea, or one of its inlets, have the finest of all places. The water of a stream or pond should be deep enough to come breast high; indeed, this is better than deeper for a beginner, as it gives him confidence to know that he cannot go "overhead." Quite as important as the water, is the bottom on which it rests. This should not be steep, but incline very gradually, and should, if possible, be of sand or fine gravel. Above all, there should be no deep hole, and it should be free from large, slender, floating water plants.

HOW TO LEARN.

By far the safest and easiest way to learn is with the help of an older friend, who is a good swimmer. Not only can one learn more rapidly with a little instruction, but it gives a feeling of confidence that will add greatly to the pleasure of learning. Still, in water that is nowhere too deep, there should be no danger, especially if several go together.

WHEN TO SWIM.

One should not enter the water when greatly fatigued, or overheated, or immediately after a meal. The best time is after the heat of the day is over. Do not forget to take with you towels and a strong and coarse comb.

ENTERING THE WATER.

One who cannot swim usually hesitates and shivers as he enters the water. As soon as the body is wet all over, this unpleasant feeling will cease; therefore, having waded in where the water is deep enough, you should turn your face towards the bank and "duck" yourself all over, including the head. The sensation is a new one, and when the water is out of your eyes and ears, you will feel on much better terms with the water than before.

HOW TO BEGIN.

The first thing to learn is that your body will almost float if you will let it. Wade out until the water is up to your shoulders, and facing the bank, make a few light springs with the toes. You will be surprised to find how far you will rise up, and how light your body seems when in the water. If timid about going out so far, a small rope, with one end made fast to a tree, and the other in the hands, will give great confidence. If a friend will teach you, follow his instructions. If no such friend is at hand, go out until the shoulders are under water, and try to swim back to the shore, using your legs, and just as the frog does, and your arms and hands to help you on. You may make but a few feet at first without your toes touching the bottom, but persevere; don't get in a flurry, or fatigued, but make the strokes regularly, as you see good swimmers make them, and you will soon succeed. Learn to swim easily, and with confidence, and you may then try some of the fancy strokes and positions, which I may talk about later.

Conundrum.

What is the weight of a pig which weighs five pounds and three-fourths of its own weight?

Riddle.

Take the fourth vowel, and the first,
And five place in the middle;
Then nothing in the front is seen,
And fifty ends the riddle!

(Answer in next number of the *Am. Agriculturist.*)

Fishing, and Catching Fish.

The article, "First Day's Fishing," in the May number of the *American Agriculturist*, hit me just where my memory is the longest. It recalls the time, over sixty years ago, when my clothes were wet, a stone-bruise on my heel, and a toe nail stubbed off, I had just such an old crooked fish-pole. I then cut my fish-poles in the woods, and no one that has never tried it has any idea what a job it is to get a straight one. A sapling looks straight; you cut it down and trim it. Then there are so many crooks in it that you reject it and cut several more before you get one to suit. Any one who ever cut fish poles knows how it is. The boy asked what was the difference between going for fish and going fishing. His father said to catch fish was to get a few scaly things not worth much, but going fishing was quite another thing. It included the sunshine and the birds, and the murmur of the brooks, and many other things. That father was like thousands of others who go fishing and bring home memories of pleasant hours of the murmuring waters and sunshine and birds. But a look in the basket may reveal no fish there, unless the fisher has met some boy on the stream who did not know or care whether there were any birds or sunshine that day or not, so that he got the fish and sold them to the fellow that was seeing everything else, except a favorable hole to cast his line.

Now I don't say I never see anything while I am fishing. I do as much looking about as any man when I am not fishing. But when I am fishing, I do nothing else. If the fish don't bite I am wondering if my bait is all right, and I don't go long without a bite before I look at my bait and make some change in it. If nothing more, I take it off and put it on again. Then I jerk it a little faster or a little slower and let it sink to the bottom, let it lie a minute, then give it a sharp jerk, and if there is no bite I change places or let out the line and get the bait farther away from me. If fly fishing I have a number of motions to give the fly. Sometimes one motion will coax the fly fish to bite and sometimes another. But I am fishing all the time.

SETH GREEN.

The American Otter (*Lutra Canadensis*).

The otters are an extremly interesting class of animals. They are rare in the older parts of the country, but were, no doubt, once common in the Atlantic States. Now they are found in Canada and at the West. They live in rapid streams and clear ponds, and almost the whole of their diet is fish. These they take in the water by the great rapidity of their swimming and agility in turning. Though they are awkward in their motions upon land, their grace and ease of movement in the water is very noticeable. They swim, so to speak, all over, like a snake or an eel, using their long tails to propel them forward.

The American otter (*Lutra Canadensis*), has sharp claws on all its feet, which are webbed, and, besides, it is somewhat weasel-like in its character and habits; but there are others which lack claws on the feet, and which are much like seals. In fact, this genus seems to occupy a sort of intermediate position between weasels and seals. In size they are as large as some of the seals, our otter being often four and a half feet long, and weighing twenty to twenty-five pounds. Where otters abound, near their feeding places, which are called otter-slides, are generally found. These are smooth tracks on clayey banks, leading down into the water, where the otters go with their families to slide. Their dense fur is wet only upon the outside, and when they come out of the water they bring enough with them to wet the slide as they slip down, and hunters who have watched them say they appear to enjoy the fun as much as a parcel of school-boys, or young Indians on their toboggans.

The pelt of the otter is very valuable. It consists of exceedingly fine, close fur, which has considerable length. This is thickly interspersed with long, strong hairs, which in the rough and tumble of the animal's life take the wear and tear, and protect the more delicate fur from harm. During the life of the animal a natural oil exudes and coats even the finest fur, not so as to make it adherent, but to prevent any possibility of its becoming wet. Thus, though wet on the outside, so that the otter when coming out of the water looks "as wet as a drowned rat," in reality not a drop of water ever touches his skin. Hence, even in winter the icy water does not chill him. Otters are very heavily and strongly boned; so heavy are they that when shot, if they can get to the water they will sink and probably be lost. Therefore they are almost always taken in traps, which may be set at the foot of their slides, or baited with fish and placed under water near the shores which they frequent. The otter consumes immense quantities of fish, but as he abounds only in localities where fish are very plenty, it does not matter much; besides, the fish which he chiefly consumes are of the more sluggish kinds, and not those considered game fish. However, in some parts of the world as in Scotland, we believe, the otter successfully attacks the salmon, one of the most valuable of fishes. Otters will remain under water two minutes at a time, giving them time to capture and devour a moderate sized fish before coming to the air. In color these animals are dark-brown above, and lighter beneath, and when the fur is blown open, it discloses beautiful bandings of different tints. In use, the long hairs are usually plucked out.

OTTERS AT HOME.

Re-Engraved for the American Agriculturist.

LEARN TO REFLECT. A young man was one day boasting that he had read a great many instructive books. An old philosopher who heard him answered: "The healthiest persons are not those who eat most, but those who best digest their food."

State, County and Other Fairs in 1887.

PREPARED EXPRESSLY FOR THE AMERICAN AGRICULTURIST.

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STATE, PROVINCIAL, etc.

Alabama	Montgomery	Oct. 17-23
Am. Institute	New York	Sept. 28-Dec. 3
Canadian Expos'n	Toronto, Ont.	Oct. 5-17
California	Sacramento	Sept. 12-24
Connecticut	Meriden	Sept. 13-16
Delaware	Dover	Sept. 26-Oct. 1
Frontenac Prov'c'l	Kingston, Ont.	Sept. 27-30
Georgia	Macon	Oct. 24-Nov. 2
G't Central Fair	Hamilton, Ont.	Sept. 26-30
Illinois	Olney	Sept. 24-30
Illinois Fat Stock Show	Chicago	Nov. 8-18
Indiana	Indianapolis	Sep.19-24
Iowa	Des Moines	Sept. 2-9
Kansas	Topeka	Sept. 19-24
Kentucky	Lexington	Aug. 30-Sept. 3
Nat'l Ag'l Exp'n	Kansas City, Sept. 15-Nov. 1	
No. Ind. & S. Mich.	Mishawaka, Ind.	Sept. 13-16
North'n Wis.	Oshkosh	Sept. 5-9
Maine	Lewiston	Sept. 6-9
Maryland	Easton	Sept. 19-23
Michigan	Jackson	Sept. 19-25
Minnesota	St. Paul	Sept. 9-17
Missouri	St. Louis	Oct. 3-8
Missouri Fat Stock	Kansas City.	Oct. 27-Nov. 3
Montana	Helena	Aug. 22-27
Mississippi	Jackson	Oct. 17-22
Nebraska	Lincoln	Sept. 9-16
New Jersey	Waverly	Sept. 19-23
New York	Rochester	Sept. 8-14
North Carolina	Raleigh	Oct. 19-21
Ohio	Columbus	Aug.29-Sept. 2
Ohio North We'rn	Fostoria	Aug. 30-Sept. 2
Omaha Expos'n	Omaha, Neb.	Sept. 5-10
Ontario	Ottowa	Sept. 19-24
Pennsylvania	Phila.	Sept. 5-17
Piedmont Exposition, including Va., N. and S. C., Ga., Ala., and Tenn., held at Atlanta, Ga		Oct. 10-22
Rhode Island	Providence	Sept. 19-23
South Carolina	Columbia	Nov. 8-11
Tennessee	Nashville	Sept. 26-Oct. 1
Texas	Dallas	Oct. 20-Nov. 5
Tri-State Fair	Toledo, O.	Sept. 5-10
Vermont	Burlington	Sept. 12-16
Virginia	Richmond	Oct. 26-28
West'n Michigan	Grand Rapids	Sept. 19-23
West'n Nat. Fair A.	Lawrence, Ks.	Sept. 5-11
West Virginia	Wheeling	Sept. 5-9
Wisconsin	Milwaukee	Sept. 12-17
Wis. Industrial	Racine	Aug. 29-Sept. 3

COUNTY AND DISTRICT FAIRS.

ALABAMA.

Limestone	Athens	Oct. 4-8
Montgomery	Montgomery	Oct. 17-24

ARKANSAS.

Jefferson	Pine Bluff	Oct. 19 23
Phillips	Helena	Oct. 18-22
Sebastian	Ft. Smith	Oct. 18-22
Van Buren	Clinton	Sept. 15-20
White	Judsonia	Oct. 12-14

COLORADO.

Larimer	Ft. Collins	Sept. 20-23
Weld	Greeley	Sept. 13-16

CONNECTICUT.

Fairfield	Norwalk	Sept. 13-16
Middlesex	Chester	Oct. 6
Tolland	Rockville	Oct. 4-6
Windham	Brooklyn	Sept. 20-22

CONNECTICUT DISTRICT,

Litchfield	Watertown	Sept. 20-23

DAKOTA.

Bonhomme	Tyndall	Sept. 22-24
Charles Mix	Castila	Sept. 14-16
Davison	Mitchell	Sept. 26-29
Day	Webster	Sept. 13-15
Deuel	Gary	Sept. 15-17
Jasper	Latona	Aug. 22-26
Sanborn	Artesian City	Sept. 21-23
Spink	Ashton	Sept. 20-23

ILLINOIS.

Adams	Camp Point	Aug. 29-Sep. 2
Boone	Belvidere	Sept. 13-16
Brown	Mt. Sterling	Aug. 22-26
Burgan	Princeton	Sept. 6-9
Carroll	Mt. Carroll	Sept. 27-30
Coles	Charleston	Sept. 13-17
DeKalb	Sycamore	Sept. 20-23
DeWitt	Clinton	Sept. 12-16
Du Page	Wheaton	Oct. 4-6
Edgar	Paris	Sept. 5-9
Fulton	Canton	Sept. 6-9
Gallatin	Shawneet'n	Aug. 30-Sept. 3
Greene	Carrollton	Oct. 18-21
Hardin	Elizabethtown	Aug. 9-12
Hamilton	McLeansboro	Sept. 13-16
Hancock	Carthage	Sept. 5-9
Henderson	Biggsville	Aug. 30-Sept. 2
Henry	Cambridge	Aug. 29-Sept. 10
Illinois	Jonesboro	Sept. 13-16
Jasper	Newton	Sept. 13-16
Jersey	Jerseyville	Oct. 11-14
Jo Daviess	Warren	Sept. 20-24
Lake	Libertyville	Sept. 14-17
Lake	Waukegan	Sept. 5-10
La Salle	Mendota	Aug. 29 Sept. 4
Logan	Lincoln	Aug. 29-Sept. 2
Logan, McLean, De Witt & Tazewell	Logan	Sept. 6-9
Macoupin	Carlinville	Sept. 6-9
Marion	Salem	Oct. 4-7
McDonough	Bushnell	Oct. 10-14
McDonough	Macomb	Sept. 5-9
McHenry	Woodstock	Sept. 20-23
McLean	Bloomingt'n	Aug 30-Sept. 3
Menard	Petersburg	Sept. 6-9
Montgomery	Hillsboro	Sept. 13-16
Moultrie	Sullivan	Sept. 27-30
Ogle	Rochelle	Sept. 13-16
Pike	Pittsfield	Sept. 6-9
Pope	Golconda	Oct. 5-8
Richland	Olney	Sept. 24-30
Saline	Harrisburg	Sept. 13-16
Schuyler	Rushville	Aug. 16-19
Shelby	Shelbyville	Sept. 20-24
St. Clair	Belleville	Oct. 11-14
Tazewell	Delavan	Sept. 12-16
Tazewell	Mackinaw	Aug. 30-Sept. 2
Vermillion	Catlin	Sept. 13-16
Vermillion	Danville	Sept. 5-10
Warren	Monmouth	Sept. 13-16
White	Carmi	Sept. 6-10
Whiteside	Albany	Aug. 30 Sept. 2
Whiteside	Morrison	Sept. 6-9
Winnebago	Rockford	Sept. 5-9

ILLINOIS DISTRICT.

Cumberland	Toledo	Sept. 21-24
DeWitt	Farmer City	Aug. 30-Sept. 2
Ford	Piper City	Sept. 13-15
Fulton	Avon	Sept. 20-23
Jackson	Carbondale	Oct. 10-14
LaSalle	Ottawa	Aug. 9-12
Marion	Centralia	Sept. 13-17
Marshall	Wenona	Sept. 12-16
Saline	El Dorado	Aug. 23-27
Stark	Wyoming	Sept. 13-16
Vermillion	Hoopston	Aug. 22-26
Woodford	El Paso	Sept. 19-23

INDIANA.

Blackford	Hartford City	Aug. 23-25
Boone	Lebanon	Aug. 15-19
Cass	Logansport	Aug. 29-Sept. 2
Clark	Charleston	Sept. 5-9
Clinton	Frankfort	Aug. 22-27
Daviess	Washington	Sept. 26-Oct. 1
Dearborn	Lawrenceburg	Aug. 23-27
Decatur	Greensb'g	Aug. 30-Sept. 3
Delaware	Muncie	Aug. 16-20
Elkhart	Goshen	Sept. 20-23
Fulton	Rochester	Sept. 27-Oct. 1
Gibson	Princeton	Sept. 13-15
Grant	Marion City Asso.	Sept. 2
Greene	Linton	Oct. 3-7
Hamilton	Noblesville	Aug. 22-26
Hancock	Greenfield	Aug. 23-27
Harrison	Corydon	Aug. 30-Sept. 3
Henry	New Castle	Aug. 9-13
Howard	Kokomo	Sept. 12-16
Huntington	Huntington	Sept. 27-Oct. 1
Jackson	Brownstown	Aug. 29-Sept. 2
Jasper	Rensselaer	Aug. 30-Sept. 2
Jay	Portland	Sept. 27-30
Jennings	No. Vernon	Aug. 9-12
Knox	Vincennes	Oct. 10-15
La Grange	La Grange	Sept. 27-30
Lake	Crown Point	Sept. 13-16
La Porte	La Porte	Sept. 27-30
Lawrence	Bedford	Sept. 13-17
Madison	Anderson	Sept. 5-9
Monroe	Bloomington	Sept. 27-30
Montgomery	Crawfordsville	Sept. 5-9
Newton	Morocco	Sept. 20-23
Noble	Ligonier	Oct. 11-14
Orange	Paoli	Sept. 7-10
Parke	Rockville	Aug. 15-20
Perry	Tell City	Sept. 13-18
Pike	Petersburg	Sept. 5-10
Porter	Valparaiso	Sept. 20-23
Posey	New Harmony	Sept. 19-23
Randolph	Winchester	Aug. 30-Sept. 2
Ripley	Osgood	Aug. 16-19
Rush	Rushville	Sept. 13-16
Shelby	Shelbyville	Sept. 7-10
Spencer	Chrisney	Oct. 3-8
Steuben	Angola	Oct. 11-14
Sullivan	Sullivan	Sept. 5-10
Tippecanoe	Lafayette	Aug. 29-Sept. 3
Tipton	Tipton	Aug. 15-19
Vermillion	Eugene	Aug. 22-27
Vigo	Terre Haute	Aug. 29-Sept. 3
Wabash	Wabash	Sept. 13-16
Warren	W. Lebanon	Aug. 16-20
Warrick	Booneville	Aug. 29-Sept. 3
Washington	Salem	Aug. 23-27

INDIANA DISTRICT, ETC.

Acton Fair Asso.	Acton	Aug. 30-Sept. 3
Arcadia Fair Ass.	Arcadia	Aug. 29-Sept. 2
Black Hawk	La Porte	Aug. 30-Sept. 1
Bridgeton Union	Bridgeton	Aug. 22-27
East. Ind. Agr'l.	Kendallville	Oct. 3-7
Fairm't Union	Fairmount	Sept. 12-16
Fountain, Warren & Verm	Covington	Sept. 20-23
Francisville Ag'l.	Francisville	Sept. 27-30
Henry, Madison & Delaware	Middletown	Aug. 16-19
Inter-State	Fort Wayne	Sept. 27-30
Knightst'n Union	Knightstown	Aug. 30-Sept. 2
Lawrence Dist.	Lawrence	Sept. 12-15
Loogootee Dist.	Loogootee	Aug. 30-Sept. 3
Miami & Fulton	Macy	Sept. 21-24
New Ross Agr'l.	New Ross	Sept. 8-12
Northeastern Ind.	Waterloo	Sept. 26-30
North Manchester Tri-Co	No. Manchester	Oct. 4-7
No. Ind. So. Mich.	South Bend	Sept. 12-16
Orleans Agr'l.	Orleans	Sept. 20-24
Perry Co. Agricultural and Mechanical Association		Oct. 3-8
Poplar Grove, A. H. & M. A.	Poplar Grove	Sept. 26-30
Seymour Fair Ass.	Seymour	Oct. 4-8
Switzerl'd & Ohio.	East Enterprise	Sept. 13-16
Union City A. & M. A.	Union City	Sept. 5-9
Urmyville Agr'l.	Urmyville	Oct. 6-8
Warren Tri-Co.	Warren	Sept. 6-10
Washington and Clark	Pekin	Sept. 6-10
Wayne, Henry & Randolph	Dalton	Sept. 6-9
Xenia Union	Xenia	Aug. 24-26

IOWA.

Adams	Corning	Sept. 26-30
Allamakee	Waukon	Sept. 13-16
Benton	Vinton	Sept. 13-16
Boone	Ogden	Sept. 15-17
Bowen	Glasgow	Sept. 28-Oct. 1
Cass	Atlantic	Sept. 27-30
Cerro Gordo	Mason City	Sept. 14-16
Chickasaw	New Hampton	Sept. 14-16
Clarke	Osceola	Sept. 13-16
Clay	Spencer	Sept. 21-23
Clayton	National	Sept. 27-29
Clinton	De Witt	Sept. 13-16
Crawford	Denison	Sept. 20-23
Dallas	Adel	Sept. 20-23
Decatur	Leon	Aug. 30-Sept. 2
Des Moines	Burlington	Sept. 26-30
Fayette	West Union	Sept. 13-16
Floyd	Charles City	Sept. 21-23
Franklin	Hampton	Sept. 19-22
Greene	Jefferson	Aug. 30-Sept. 2
Grundy	Grundy Centre	Sept. 20-22
Guthrie	Guthrie Center	Sept. 27-30
Hancock	Britt	Sept. 27-29
Hardin	Eldorn	Sept. 13-16
Harrison	Missouri Valley	Oct. 3-6
Henry	Mt. Pleasant	Aug. 30-Sep. 2
Henry	Winfield	Sept. 13-16
Humboldt	Humboldt	Sept. 14-16
Iowa	Marengo	Sept. 13-16
Jackson	Maquoketa	Aug. 30-Sept. 2
Jasper	Newton	Sept. 20-23
Johnson	Iowa City	Aug. 29-Sept. 1
Jones	Monticello	Aug. 29-Sept. 2
Keokuk	Sigourney	Sept. 13-16
Kossuth	Algona	Sept. 27-29
Lee	Donellson	Aug. 23-26
Lee	Keokuk	Aug. 9-12
Lucas	Charlton	Sept. 13-16
Madison	Winterset	Sept. 27 29
Mahaska	Oskaloosa	Aug. 29-Sept. 2
Marion	Knoxville	Aug. 22-26
Monroe	Albia	Aug. 25-26
Muscatine	Muscatine	Sept. 27-29
Ringgold	Mt. Ayr	Sept. 27-30
Shelby	Harlan	Sept. 21-23
Shiawassee	Owasso	Oct. 4-6
Story	Nevada	Sept. 13-16
Tama	Tama	Sept. 13-16
Taylor	Bedford	Sept. 27-30
Union	Afton	Sept. 15-17
Van Buren	Keosauqua	Sept. 13-16
Wright	Clarion	Sept. 13-16

IOWA DISTRICT.

Appanoose	Moulton	Sept. 13-16
Boone	Boone	Sept. 21-24
Cedar	Mechanicsville	Sept. 13-16
Clayton	Strawberry P't	Sept. 20-23
Harrison	Dunlap	Sept. 28-30
Keokuk	Richland	Sept. 20-23
Mahaska	New Sharon	Sept. 21-23
Muscatine	W. Liberty	Sept. 13-15
Tama	Traer	Aug. 31-Sept. 2
Union	Creston	Aug. 29-Sept. 2
Van Buren	Milton	Aug. 30-Sept. 2
Wapello	Agency City	Oct. 4-7

KANSAS.

Anderson	Garnett	Aug. 30-Sept. 2
Bourbon	Fort Scott	Oct. 4-7
Brown	Hiawatha	Oct. 4-7
Coffey	Burlington	Sept. 12-16
Crawford	Girard	Oct. 4-7
Chase	Cottonw'd Falls	Sept. 28-30
Cowley	Winfield	Sept. 5-9
Davis	Junction City	Sept. 20-22
Douglas	Lawrence	Sept. 5-10
Elk	Howard	Sept. 22-24
Ellis	Hays City	Sept. 20-23
Franklin	Ottawa	Sept. 27-Oct. 1
Harvey	Newton	Sept. 26-29
Jefferson	Oskaloosa	Sept. 13 16
Jewell	Mankado	Sept. 27-30
Linn	Mound City	Sept. 19-23
Marion	Marion	Sept. 6-8
Marion	Peabody	Sept. 14-16
Montgomery	Independence	Sept. 6-10
Osage	Burlingame	Sept. 27-30
Riley	Manhattan	Sept. 13-16
Rush	LaCrosse	Sept. 13-15
Salina	Salina	Sept. 7-9
Sedgwick	Wichita	Sept. 12-16
Shawnee	Topeka	Sept. 19-24
Smith	Smith Centre	Sept. 14-17
Sumner	Wellington	Aug. 30-Sept. 2
Washington	Greenleaf	Sept. 21-23

KANSAS DISTRICT.

Linn	La Cygne	Sept. 5-9
Phillips	Phillipsburg	Sept. 27-30
Pottawatomie	St. Marys	Oct. 4-7

KENTUCKY.

Anderson	Lawrenceburg	Aug. 16-19
Bourbon	Paris	Sept. 6-10
Boyle	Danville	Aug. 2-5
Campbell	Alexandria	Aug. 30-Sep. 3
Crittenden	Marion	Oct. 18-21
Daviess	Owensboro	Oct. 11-15
Fayette	Lexington	Aug. 30-Sept. 3
Harden	Elizabethtown	Sept. 13-16
Henderson	Henderson	Oct. 4-8
Jefferson	Fern Creek	Aug. 23-25
Kenton	Covington	Aug. 23-27
Madison	Kirksville	July 22-23
Mason	Germantown	Oct. 12-15
Muhlenberg	Greenville	Oct. 19-22
Nelson	Near Bardstown	Sept. 6-9
Pulaski	Somerset	Sept. 13-16
Shelby	Shelbyville	Aug. 23-26
Union	Uniontown	Aug. 16-20
Warren	Bowling Green	Sept. 7-10

KENTUCKY DISTRICT.

Young Men's Ky. Fair, Maysville, Aug. 17-20		

LOUISIANA.

Coddo	Shreveport	Nov. 8-12

MAINE.

Androscoggin	Lewiston	Oct. 4-6
Cumberland	Gorham	Sept. 27-29
Franklin	Farrington	Oct. 4-6
Franklin	Philips	Oct. 11-13
Kennebec	Readfield	Sept. 27-29
Kennebec	Waterville	Sept. 27-29
Knox	Rockland	Sept. 27-30
Lincoln	Damariscotta	Oct. 4-6
No. Aroostooke	Presque Isle	Sept. 13-15
Oxford	South Paris	Sept. 27-29
Penobscot	Exeter	Sept. 27-29
Somerset	Skowhegan	Sept. 20-22
Washington	Cherryfield	Sept. 28-29
Washington	Machias Park	Sept. 21-22
York	Biddeford	Sept. 27-29

MAINE DISTRICT.

Central Washington Ag'l Society	Machias	Sept. 21-22
York	Cornish	Sept. 13-15

MARYLAND.

Cecil	Elkton	Oct. 4-7
Frederick	Frederick	Oct. 11-14
Harford	Bel Air	Oct. 11-14
Kent	Worton Station	Sept. 20-23
Talbot	Easton	Sept. 20-23
Washington	Hagerstown	Oct. 17-20

MARYLAND DISTRICT.

Caldwell	Hamilton	Aug. 30-Sept. 2

MASSACHUSETTS.

Barnstable	Barnstable	Sept. 27-28
Berkshire	North Adams	Sept. 20-23
Berkshire	Gt. Barrington	Sept. 28-30
Berkshire	Pittsfield	Sept. 13-15
Bristol	Taunton	Sept. 27-30
Dukes	West Tisbury	Oct. 4-6
Essex	Peabody	Sept. 27-28
East'n Hampden	Palmer	Sept. 13-14
Franklin	Greenfield	Sept. 29-30
Hampden	Holyoke	Sept. 21-22
Hampshire	Cummington	Sept. 27-28
Plymouth	Hingham	Sept. 27-28
Plymouth	Bridgewater	Sept. 21-23
Worcester	Worcester	Aug. 30-Sept. 2
Worcester	Sturbridge	Sept. 15-16

MICHIGAN.

Antrim	Bellaire	Sept. 28-30
Allegan	Allegan	Oct. 4-7
Barry	Hastings	Sept. 27-30
Bay	Bay City	Sept. 14-16
Berrien	Benton Harbor	Sept. 14-17
Eaton	Charlotte	Oct. 4-7
Calhoun	Marshall	Oct. 4-7
Gratiot	Ithaca	Sept. 27-30
Genesee	Fenton	Oct. 4-7
Genesee	Flint	Sept. 19-23
Grand Travern	Traverse City	Oct. 4-7
Hillsdale	Hillsdale	Oct. 4-7
Jackson	Jackson	Sept. 19-23
Kalamazoo	National Park	Oct. 4-7
Kent	Grand Rapids	Sept. 19-23
Lenawee	Adrian	Sept. 27-30
Macomb	Armada	Oct. 5-7
Mason	Ludington	Sept. 13-16
Midland	Midland City	Sept. 14-16
Monroe	Petersburg	Oct. 4-8
Montcalm	Greenville	Oct. 4-8
Oakland	Milford	Oct. 4-6
Oakland	Pontiac	Sept. 27-30
Ogemaw	West Branch	Sept. 27-29
Osceola	Evart	Sept. 28-30
Ottawa	Berlin	Sept. 27-30
Tuscola	Vassar	Sept. 27-30
Van Buren	Paw Paw	Sept. 28 30
Washtenaw	Ypsilanti	Sept. 27-30

MICHIGAN DISTRICT.

Buren	South Haven	Oct. 5-7
Cass	Dowagiac	Oct. 4-7
Ingham	Stockbridge	Oct. 4-7
Lapeer	Hadley	Oct. 4- 6
Wayne	Plymouth	Oct. 4-7

MINNESOTA.

Anoka	Anoka	Sept. 6-8
Brown	New Ulm	Sept. 19-21
Chicago	Rush City	Sept. 6-9
Clay	Clyndon	Oct. 4-6
Carver	Chaska	Sept. 23-24
Chippewa	Montevidio	Sept. 24——
Faribault	Winnebago	Sept. 29-Oct. 1
Fillmore	Preston	Sept. 21-23
Hubbard	Park Rapids	Sept. 7-8
Lyon	Marshall	Sept. 13-15
Morrison	Little Falls	Aug. 30-Sept. 1
Mower	Austin	Sept. 13-15
Nicollet	St. Peter	Sept. 7-8
Redwood	Redwood Falls	Sept. 21-23
St. Louis	Duluth	Oct. 1
Sibley	Arlington	Sept. 29-30
Scott	Shakopee	Sept. 7-8
Todd	Long Prairie	Sept. 20-22
Watonwan	Madelia	Sept. 22-24

MINNESOTA DISTRICT.

Blue Earth	Mankato	Sept. 20-23
Goodhue	Red Wing	Sept. 1-3
Olmsted	Rochester	Sept. 5-10
Stearns	St. Cloud	Sept. 27-29

MISSISSIPPI.

Sharkey	Rolling Fork	Oct. 11-15

MISSISSIPPI DISTRICT.

Monroe	Aberdeen	Oct. 25-28

MISSOURI.

Audrian	Mexico	Aug. 9-13
Atchison	Tarkio	Aug. 30-Sept. 2
Buchanan	St. Joseph	Sept. 12-17
Callaway	Fulton	Aug. 23-27
Carroll	Tina	Sept. 20-24
Cape Girardeau	Cape Girardeau	Oct. 11-15
Chariton	Keytesville	Oct. 4-8
Clark	Kahoka	Aug. 29-Sept. 2
Dallas	Buffalo	Sept. 28-Oct. 1
Franklin	Washington	Sept. 8-10
Greene	Springfield	Sept. 5-10
Grundy	Trenton	Sept. 6-9
Jackson	Kansas City	Sept. 15-Nov. 1
Jasper	Sarcoxie	Oct. 4-8
Johnson	Holden	Aug. 23-26
Lafayette	Higginsville	Aug. 23-27
Lewis	La Grange	Aug. 23 26
Livingston	Avalon	Aug. 30-Sept. 2
Marion	Hannibal	Aug. 30-Sept. 3
Marion	Palmyra	Oct. 11-15
Mercer	Princeton	Aug. 30-Sept. 2

Moniteau	California	Sept. 20-23
Monroe	Paris	Sept. 13-17
Nodaway	Maryville	Sept. 19-24
Pettis	Sedalia	Aug. 15-20
Platte	Platte City	Aug. 30—
Putnam	Unionville	Sept. 21-24
St. Francis	Farmington	Sept. 6-10
Shelby	Shelbina	Sept. 6-9
Shelby	Shelbyville	Aug. 29-Sept. 2
Sullivan	Milan	Sept. 14-17

MISSOURI DISTRICT.

Boone	Columbia	Aug. 16-20
Caldwell	Hamilton	Aug. 30-Sept. 2
Drew	Monticello	Oct. 4-7
Harrison	Ridgeway	Sept. 20—
Holt	Mailland	Sept. 5-9
Lewis	Williamstown	Sept. 19-24
St. Clair	Appleton City	Sept 7-10
Saline	Marshall	Aug. 2-5

NEBRASKA.

Adams	Hastings	Sept. 6-9
Antelope	Neligh	Sept. 28-30
Boone	Albion	Oct. 4-6
Buffalo	Kearney	Sept. 27-30
Butler	David City	Oct. 4-7
Clay	Clay Centre	Sept. 27-30
Dixon	Ponca	Sept. 6-9
Dodge	Fremont	Sept. 27-30
Franklin	Franklin	Sept. 21-23
Gage	Blue Springs	Sept. 20 23
Hall	Grand Island	Sept. 20-24
Hitchcock	Calbeston	Sept. 28-30
Holt	O'Neill	Oct. 4-7
Jefferson	Fairbury	Sept. 27-30
Johnson	Tecumseh	Sept. 6-9
Knox	Creighton	Sept. 20-23
Lancaster	Lincoln	Sept. 9-16
Merrick	Central City	Oct. 6-8
Nemaha	Auburn	Oct. 4-7
Nuckolls	Nelson	Sept. 21-23
Otoe	Syracuse	Sept. 27-30
Polk	Osceola	Sept. 20 30
Richardson	Salem	Sept. 6-9
Sarpy	Papillion	Sept. 20-23
Seward	Seward	Sept. 28 Oct. 1
Thayer	Hebron	Sept. 6-8
Valley	Ord	Sept. 5-8
Webster	Red Cloud	Sept. 6-9
York	York	Sept. 6-9

NEBRASKA DISTRICT.

Cass	Weeping Water	Aug. 30-S. 2
Richardson	Falls City	Sept. 26-30
Saline	Friend	Sept. 4-7

NEW HAMPSHIRE.

Belknap	Laconia	Sept. 6-9

NEW JERSEY.

Atlantic	Egg Harbor City	Sept. 23-26
Burlington	Mt. Holly	Oct. 10-15
Cumberland	Bridgeton	Sept. 6-8
Essex	Waverly Park	Sept. 12-17
Hunterdon	Flemington	Sept. 27-30
Mercer	Trenton	Oct. 4-7
Monmouth	Freehold	Sept. 13-15
Salem	Woodstown	Sept. 13-15
Somerset	Somerville	Oct. 4-6
Sussex	Newton	Oct. 4-7

NEW YORK.

Alleghany	Cuba	Sept. 13-16
Alleghany	Angelica	Sept. 20-22
Broome	Whitney Point	Sept. 6- 9
Chautauqua	Jamestown	Sept. 5- 8
Chemung	Elmira	Oct. 4-7
Dutchess	Wash'n Hollow	Sept. 27-30
Essex	Westport	Sept. 5- 7
Franklin	Malone	Sept. 27-29
Fulton	Johnstown	Sept. 6 8
Genesee	Batavia	Sept. 20-22
Jefferson	Carthage	Sept. 6-8
Lewis	Lowville	Sept. 13-16
Livingston	Geneseo	Oct. 6-7
Montgomery	Fonda	Aug. 31-Sept. 3
Oneida	Rome	Sept. 19-23
Onondaga	Syracuse	Sept. 20-23
Ontario	Canandaigua	Sept. 28-30
Orleans	Albion	Sept. 22-24
Oswego	Mexico	Sept. 27-29
Otsego	Cooperstown	Sept. 19-21
Putnam	Carmel	Sept. 20-23
Queens	Mineola	Sept. 27-30
Rensselaer	Lansingburgh	Sept. 13-16
Rockland	Spring Valley	Sept. 27-29
Saratoga	Ballston Springs	Sept. 6-9
Schoharie	Schoharie	Sept. 27-29
Seneca	Waterloo	Sept. 27-29
Steuben	Bath	Sept. 27-30
Steuben	Hornellsville	Aug. 29-Sept. 2
St. Lawrence	Canton	Sept. 13 15
Suffolk	Riverhead	Oct. 4-6
Sullivan	Monticello	Sept. 6-8
Tioga	Owego	Sept. 6-8
Tompkins	Ithaca	Sept. 14-17
Washington	Fort Edward	Sept. 13-16
Wayne	Lyons	Sept. 21-23
Westchester	White Plains	Sept. 26-Oct. 1

NEW YORK DISTRICT.

Cattaraugus	Randolph	Sept. 26-29
Ulster	Ellenville	Sept. 27-29
Wyoming	Perry	Sept. 29-30

NORTH CAROLINA.

Cumberland	Fayetville	Nov. 9-11
Wake	Raleigh	Oct. 18-22

NORTH CAROLINA DISTRICT.

Pasquotank	Elizabeth City	Oct. 25-27
N. C. Grange Encamp't & Farmer's Institute	Mount Holly	Aug. 10-13
Nash	Rocky Mount	Oct. 3-6
Wayne	Goldsboro	Oct. 26-28

OHIO.

Adams	Winchester	Sept. 27-30
Ashtabula	Jefferson	Sept. 27-30
Athens	Athens	Sept. 28-30
Berry	New Lexington	Sept. 28-30
Brown	Georgetown	Oct. 4-7
Carroll	Carrollton	Oct. 4-6
Champaign	Urbana	Sept. 6- 9
Clarke	Springfield	Aug. 22-26
Clinton	Sabina	Aug. 22-26
Clinton	Wilmington	Aug. 16-19
Cuyahoga	Chagrin Falls	Sept. 6-9
Darke	Greenville	Sept. 12-16
Defiance	Defiance	Aug. 29-Sept. 3
Delaware	Delaware	Sept. 13-16
Erie	Sandusky	Sept. 20-23
Fairfield	Lancaster	Oct. 11-15
Fayette	Washington	Aug. 23-26
Franklin	Columbus	Aug. 29-Sept. 3
Fulton	Wauseon	Sept. 20 23
Gallia	Gallipolis	Sept. 15-17
Guernsey	Washington	Sept. 28-30
Hamilton	Carthage	Aug. 16-19
Hancock	Findlay	Sept. 27-30
Harrison	Cadiz	Sept. 27-30
Henry	Napoleon	Sept. 13-16
Highland	Greenfield	Oct. 4-7
Highland	Hillsboro	Aug. 2-5
Hocking	Logan	Oct. 6-8
Holmes	Millersburg	Sept. 27-30
Huron	Norwalk	Sept. 13-16
Jefferson	Smithfield	Sept. 21-23
Lake	Painesville	Sept. 20-23
Lawrence	Ironton	Sept. 14-16
Licking	Newark	Oct. 4-7
Licking	Hartford	Sept. 6-9
Licking	Pataskala	Aug. 23-26
Logan	Bellefontaine	Oct. 4-7
Lorain	Elyria	Sept. 27-30
Lucas	Toledo	Sept. 5-10
Mahoning	Canfield	Oct. 4-6
Marion	Marion	Oct. 11-14
Medina	Medina	Sept. 6- 8
Mercer	Celina	Sept. 27-30
Miami	Troy	Oct. 3-7
Montgomery	Dayton	Sept. 27-30
Morgan	McConnellsville	Sept. 20-23
Morrow	Mt. Gilead	Oct. 4-7
Muskingum	Zanesville	Sept. 27-30
Noble	Sarahsville	Sept. 27-29
Ottawa	Port Clinton	Oct. 5-7
Paulding	Paulding	Sept. 13-16
Perry	Somerset	Oc.. 18-20
Portage	Ravenna	Sept. 27-30
Preble	Eaton	Sept. 26-30
Putnam	Ottawa	Oct. 4-8
Richland	Mansfield	Sept. 27-30
Ross	Chillicothe	Aug. 9-12
Sandusky	Fremont	Oct. 4-7
Seneca	Tiffin	Sept. 27-30
Stark	Canton	Sept. 26 30
Stark	Marlboro	Oct. 6-8
Summit	Akron	Oct. 5-8
Trumbull	Warren	Sept. 8-10
Tuscarawas	Canal Dover	Sept. 27-30
Union	Marysville	Sept. 27-30
Van Wert	Van Wert	Sept. 6- 9
Warren	Lebanon	Sept. 6- 9
Washington	Marietta	Sept. 14-16
Wayne	Orrville	Sept. 13-16
Williams	Montpelier	Sept. 13-16
Wood	Tontogany	Sept. 26-30
Wyandotte	Up'r Sandusky	Oct. 4-6

OHIO DISTRICT.

Ashtabula	Conneaut	Sept. 14-16
Belmont	Barnesville	Oct. 4-7
Champaign	Mechanicsburg	Oct. 4-7
Defiance	Hicksville	Sept. 20-24
Greene	Jamestown	Aug. 16-19
Lorain	Wellington	Aug. 23-27
Pickaway	Adelphi	Aug. 16-19
Portage	Deerfield	Sept. 22-24
Portage	Garrettsville	Sept. 12 14
Richland	Shelby	Sept. 13-16
Vinton	McArthur	Sept. 7- 9

PENNSYLVANIA.

Armstrong	Parker	Sept. 20-23
Beaver	Beaver	Sept. 27-30
Bradford	East Towanda	Sept. 27-29
Bradford,	Troy	Sept. 13-16
Bucks	Doylestown	Oct. 4-7
Butler	Butler	Sept. 13-16
Butler	Millerstown	Sept. 6-8
Clarion	Clarion	Sept. 27-30
Columbia	Berwick	Sept. 21-24
Columbia	Bloomsburg	Oct. 12-15
Crawford	Conecutville	Sept. 27-30
Dauphin	Gratz	Sept. 20-24
Erie	Wattsburg	Oct. 4-6
Fayette	Uniontown	Oct. 4-7
Greene	Carmichaels	Oct. 12-13
Indiana	Indiana	Oct. 4-7
Jefferson	Brookville	Sept. 20-23
Lackawanna	Scranton	Sept. 20-23
Lancaster	Lancaster	Aug. 29-Sept. 3
Lehigh	Allentown	Sept. 26-30
Mc Kean	Port Allegheny	Sept. 13-16
Mercer	Mercer	Sept. 21-23
Mercer	Stoneboro	Sept. 28-30
Perry	Newport	Sept. 20-23
Sullivan	Forksville	Oct. 5-7
Susquehanna	Great Bend	Sept. 14-16
Susquehanna	Hartford	Sept. 25-29
Susquehanna	Montrose	Sept 20-23
Tioga	Wellsboro	Sept. 20-23
Venango	Franklin	Sept. 6-9
Washington	Washington	Sept. 13-16
Wyoming	Finkhannock	Sept. 14-16
York	York	Oct. 4-7

PENNSYLVANIA DISTRICT.

Chester	Oxford	Sept. 28-30
Crawford	Cochranton	Sept. 14-16
Crawford	Woodcock	Sept. 21-23
Washington	Burgettstown	Oct. 6
Washington	Sandy Plains	Sept. 27-29
York	Hanover	Sept. 20-23

RHODE ISLAND.

Washington	West Kingston	Sept. 13-15
Washington	Westerly	Sept. 13-15

SOUTH CAROLINA.

Chester	Chester	Oct. 25-28
Darlington	Darlington C. H.	Oct. 26-28

TENNESSEE.

DeKalb	Alexandria	Sept. 22-24
Dyer	Dyersburg	Oct. 18-23
Greene	Greeneville	Sept. 22-24
Giles	Pulaski	Sept. 27-Oct. 2
Monroe	Stillwater	Sept. 20-23
Obion	Union City	Oct. 4-8
Wilson	Lebanon	Sept. 8-10

TEXAS.

Shelby	Shelbyville	Sept. 6-10
Tarrant	Fort Worth	Oct. 5—

VERMONT.

Franklin	St. Albans	Sept. 7-9
Rutland	Rutland	Sept. 20-22

VIRGINIA.

Accomac	Keller	Aug. 30-Sept. 2
Augusta	Staunton	Oct. 18-21
Culpepper	Culpepper	Sept. 7-8
Fairfax	Grange Camp	Aug. 11-18
Frederick	Winchester	Oct. 11-14
Loudown	Leesburg	Sept. 13-15

VIRGINIA DISTRICT.

Albermarle	Scottsville	Oct. 5-7

WEST VIRGINIA.

Harrison	Clarksburgh	Sept. 27-30
Jackson	Ravenswood	Sept. 13-16
Mason	Point Pleasant	Aug 23-26
Monroe	Alderson	Sept. 27-30
Tyler	Middletown	Sept. 14-16

WISCONSIN.

Barron	Chetek	Sept. 6-8
Dane	Madison	Oct. 3-8
Dodge	Beaver Dam	Oct. 3-5
Grant	Lancaster	Sept. 21-23
Green	Monroe	Sept. 14-17
Iowa	Dodgeville	Sept 27-30
Jefferson	Jefferson	Sept. 27-30
Jefferson	Watertown	Sept. 19-23
Kewaunee	Kewaunee	Oct. 3-5
La Crosse	West Salem	Sept. 26-29
Manitowa	Manitowa	Sept. 26-29
Marathon	Wausau	Sept. 25-28
Ozaukee	Saukville	Sept. 27-28
Pepin	Durand	Aug. 31-Sept. 2
Rock	Janesville	Sept. 6-9
Racine	Racine	Aug. 29-Sept. 3
Sauk	Baraboo	Sept. 27-30
Sheboygan	Sheboygan Falls	Sep. 20-23
Taylor	Medford	Sept. 28-30
Vernon	Viroqua	Sept. 21-23
Walworth	Elk Horn	Sept. 20-23
Washington	West Bend	Sept. 28-30
Waukesha	Waukesha	Sept. 6-9
Wood	Grand Rapids	Sept. 20-23

WISCONSIN DISTRICT.

Fond-du-Lac	Fond-du-Lac	Sept. 27-30
Portage	Stevens Point	Aug. 30-S. 2

WYOMING.

Laramie	Cheyenne	Sept. 6-9

CANADA, etc.

Addington	Newburgh	Oct. 8—
District Leeds Co., Newboro, Sept. 20-21		
Lincoln Co., Smithville, Ont., Oct. 6-7		
Middlesex Co., Strathroy, Ont., Oct. 4-5		
Norfolk	Simcoe, Ont	Oct. 18-19
Northern Exhib'n.	Walkerton, Ont	Oct. 4-7
Oxford Co., Otterville, Ont., Oct. 7-8		
Peninsular Fair, Kent Co., Chatham, Ont., Sept. 26-29		
Port Perry	Ont	Sept. 27-30
Prince Edw'd Is'd	Charlottetown, P. E. I.	—
Sherbrooke	Quebec	Sept. 13-16
Simcoe	Cookstown	Oct. 7-8
The Central Exhibition, Guelph, Ont., Sept. 20-22		
Victoria	Lindsay, Ont	Sept. 20-22
Yarmouth	Nova Scotia	Oct. 6-7
York	Toronto	Sept. 5-17

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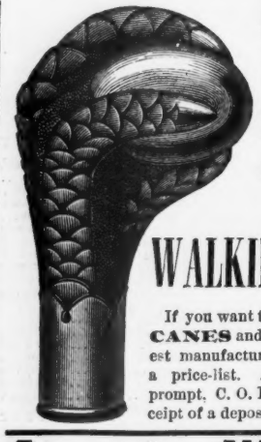

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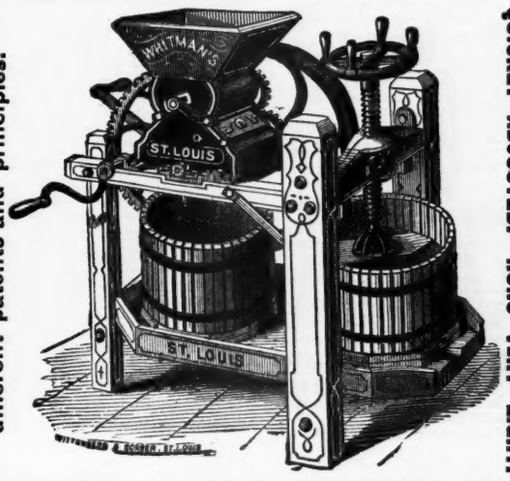

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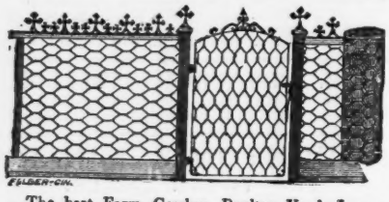

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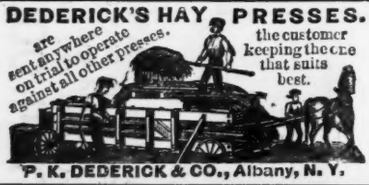

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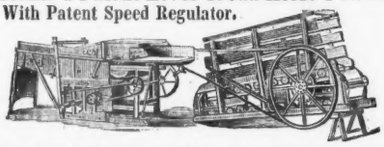

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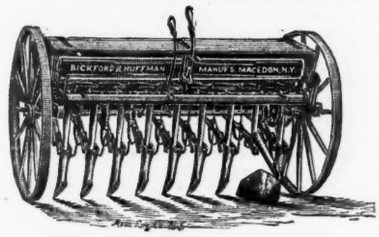

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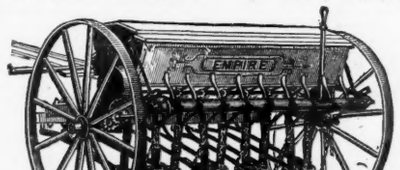

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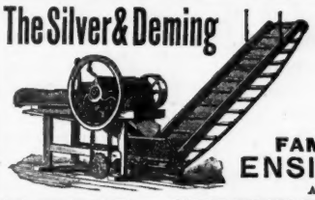

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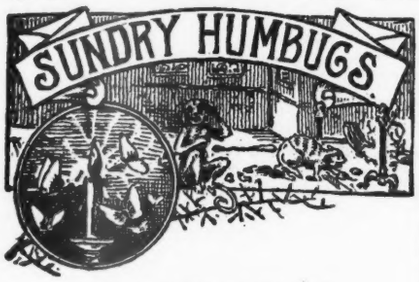


A New Lottery Fraud.

There is something in the average human mind which gives a peculiar glamour to a lottery scheme. In all such there is an apparent possibility that some one may draw out much more than was put in, and each purchaser of the seductive ticket hopes to be the lucky one. It is this which enables the lottery sharks to prey upon the public. When the scheme takes the form of an appeal in behalf of a church, it is doubly attractive. It looks to the credulous like a chance to serve God and make money, in the same operation. Some swindlers claiming to be from Montreal, Canada, have been operating quite successfully on this idea. Despatches from that point reveal a very bold-faced, shameless swindle. It first came to the light through letters received by the Chief of Police at Montreal, from persons in the United States, inquiring about a financial firm named H. Reade & Co., of Montreal. The letters were accompanied by a prospectus of a pretended "grand, legal lottery," in aid of the Parish of Saint Marc, Quebec. There was the usual illusive promise of rich prizes, the largest of which was to be forty thousand dollars. Reports say that tickets were sold by agents all over the United States. The authorities of the Church of St. Marc utterly repudiate the scheme, and have no knowledge of it whatever.

A Very Mean Swindle.

Two plausible swindlers have been operating with much success in New York State and New Jersey, by appealing to the tenderest emotions of the human heart. They claimed to act as agents for a Broadway photographer, and sell coupon orders for portraits at prices which were a mere fraction of the regular rates, collecting the pay in advance. Most of these orders are for enlarged portraits from tintypes of deceased friends and relatives. These memorials of the dead are delivered to the swindlers, and, of course, are never seen more. One of the fellows has been arrested by a New York detective.

Bunco Steerers Active.

One of the latest bunco victims, was Dr. Valentine O. King, of New Orleans, United States Minister to Ecuador. A bunco man known as "Kid" Miller, accosted Minister King on Broadway, a few days since, and introduced himself as Mr. Richardson, son of a Bank President of New Orleans. Dr. King failed to recognize him, but Miller made him believe that they had met before. They visited the Fifth Avenue Hotel, and Dr. King, at Miller's request, accompanied him to a place on Twentieth street, where the diplomat was swindled out of five hundred dollars. These bunco operators are particularly numerous around the corner of Ann street and Park Row, opposite the postoffice. Another favorite haunt of theirs is the west side of Madison Square. If one of our readers, visiting New York, is accosted in the street by a gentlemanly appearing man, who claims to be an acquaintance or the son of one, the proper thing to do, as we have so repeatedly said, is to treat him with perfect indifference, by no means giving him any information as to the name or residence.

"A Wonderful Plant."

"When, some years since, a small but intrepid band of scientific travelers and explorers penetrated into the very heart of a distant tropical country, they found, among other strange things, a most wonderful medicinal plant, the remarkable virtues and power of which had been known and utilized by the inhabitants for generations."

The above is the opening paragraph of a long, double-leaded, graphic description, together with displayed headlines, now appearing in some of the daily papers of this city. Among other things it is claimed by this description that this "wonderful plant," as employed by the advertisers, is a "*safe, sure and positive cure* for exhausted nervous vitality, nervous prostration, sleeplessness, weakness, mental depression and kindred nervous diseases." We were naturally very anxious to learn more about this wonderful plant, which performs such miraculous physical cures, in order that our readers might receive the benefit of the same. Accordingly our representative called upon the doctor, who it is stated "was among the first to learn of and use this valuable remedy" in this country. He found several patients in the doctor's reception room, waiting for prescriptions. When our representative's turn came, he asked the doctor, whether he could furnish a specimen of his new plant for a public herbarium. The doctor appeared to have little or no knowledge whatever of the appearance of the plant, and referred the inquirer to his chemists. At the laboratory, which our representative found in an adjoining basement, where rows of casks were arranged along the walls, giving the place very much the appearance of a wholesale liquor store, no information could be obtained from the "chemist," who was ignorant of the botanical name of the plant.

We were thus baffled in ascertaining the desired information regarding this "wonderful" discovery. We, however, strongly suspect that the description alludes to the plant "*Erythroxylon Coca*," and that the small but intrepid band of "scientific travelers and explorers" referred to above, were none other than Pizarro and his followers, who first penetrated into Peru, where Coca had long been used by the natives. If such be the case, that this "wonderful plant" *is* Coca, we strongly warn our readers against its use, unless under prescription by competent physicians. Those who have used Coca inform us that it is very liable to become a fixed habit with them. Indeed one asserts that the taking of it becomes a most pernicious habit, often more so than the use of alcohol or morphine. The writer of this paragraph has himself felt the unpleasant effects from taking doses of Coca, a year ago, when regularly prescribed. Regular and honest physicians, scattered through the country, are sometimes tempted to prescribe new remedies, when they have not had sufficient time or opportunity to thoroughly analyze them. We trust that in the case of Coca, they will make themselves thoroughly aware of its evil effects. While this new remedial agent may alleviate pain for the time being, it would be exceedingly unfortunate if it should lead many people to become victims of a fatal habit, as is the case with so many other powerful drugs.

The Old, Old Dodge.

For a whole generation, the *American Agriculturist* has kept up the warning, "Farmers, never sign your name to anything for a stranger." But it has been disregarded, greatly to the sorrow and loss of many farmers in counties along the Hudson River. A gang of swindlers have been there taking orders for a new patent pump and a hay-rake, to be sent by express and paid for on delivery. This looked quite safe, and so each unsuspecting farmer signed an agreement to take the articles from the express office on arrival. These agreements have since reappeared in the form of notes for various sums from fifty to three hundred dollars each.

Aiding the Good Work.

The victims of the manufacturers of counterfeit money are mainly country storekeepers and farmers. Every subscriber who forwards us the circulars of these "counterfeit" scoundrels which are sent to him directly, aids in the work of ferreting them out, as we immediately place the circulars in the hands of the authorities here. Among those who forward us the circulars, are: Jno. B. Gage, Door Co., Wis.; E. B. Dabney, Macon Co., Mo.; J. H. Murray, Elk Co., Kans.; W. A. Ellis & Co., Meigs Co., Ohio.; Jno. M. Long, Forsyth Co., N. C.; Geo. Redfield, Cass Co., Mich.; J. D. Woodall, Pike Co., Ga.; A. E. Taylor, Washington Co., Utah; E. I. Persinger, M. D., Natchitoches Co., La.

A Transparent Humbug.

Somebody has been imposing upon the "Chicago Tribune," with a story regarding an alleged journalist, who was, it says, a confrere of Greeley, Raymond and Bennett in New York, and "having amassed a fortune of nearly half a million of dollars, sold the controlling interest in his journal," and subsequently went to Chicago, where he is employed on an agricultural journal. So far from having amassed a fortune of half a million, the individual referred to had amassed debts to several hundred thousand dollars, and having nearly bankrupted "his" concern, swindled relatives and the public generally, lit out after being *under cover* here for some time. The *Tribune* story reads as if written by the individual himself, preparatory to launching some fresh swindling scheme for scooping Western friends and the public. We warn them, particularly the Methodist ministers, against buying any newspaper stock on alleged profits shown, or any stock in new machinery, whose only capital stock is on paper. Its an old dodge of the aforesaid "Traveler from the East," who, we are informed by the Chicago *Tribune* story, "graduates the spirits he consumes (daily) with a small glass tube, like a druggist's measure." The Chicago *Tribune* can have a detailed list of his victims on applying at this office.

"Business Opportunities."

Now that the harvest time is nearly over, many farmer boys are planning to come to the large cities, like New York, in quest of employment. Beware of agencies which advertise that they have numerous positions to fill, and inform you that on registering your name and paying the registry fee, five dollars, more or less, you will be sure to have a place. When "strikes" occur, vacancies follow, but that good positions are generally going a begging, waiting for individuals to come along and fill them, is absurd. Every vacancy worth having (except during the prevailance of strikes) is immediately snapped up. Our advice to country boys is, to place very little, if any, reliance on advertisements which promise them immediate employment in a variety of positions, from which they can make their selection.

Pleasure in Exposing Rascals.

Wm. A. Ellis & Co., of Racine, Ohio, have received a dishonorable business proposition from one William Ford, of West Thirty-sixth street, New York. Instead of answering Ford's communication, Messrs. Ellis & Co. forthwith forward the same to us. They write, "Enclosed find letter that explains itself. As we understand you take pleasure in exposing rascals, we take this liberty." It always affords us pleasure to ferret out and expose, for the benefit of our readers, such unadulterated scoundrels, and we find William Ford to be.

Cautionary Signals.

How a "Land Boom" is Worked.

August Schultz, McPherson county, Kansas, sends us several letters and other papers which afford a very good illustration of the methods often employed to work up a so-called "land boom." One of the papers is a warranty deed of a lot in Forest City, Reynolds county, Missouri. The nominal consideration for the lot is two hundred dollars, but the accompanying letters and circulars show that it was given to him as an inducement to act as agent in selling similar lots. Among the letters is one from the postmaster of Centerville, the county seat of Reynolds county, saying that there is no such city there. Close examination of all the papers sent us by Mr. Schultz, show several features which are peculiar. The deed is executed by a man in Muskingum county, Ohio, and its acknowledgment certified by a notary public, who also signs the deed as a witness, and a bill for whose fees is enclosed. A copy of an abstract of title which accompanies the deed, shows that the last previous owners of the land in question were the men who sign the abstract, and to whom the deed is to be sent for record. It is the usual practice to send a deed for such purpose to the proper county officer, and not to parties who may still retain at least a contingent interest in the land conveyed.

STARTING A "LAND BOOM."

If any enterprising gentlemen in Reynolds county, or other part of the country, wanted to make something out of the prevailing fever for land speculation, they would be very likely to acquire some cheap land, map it out into city lots, and place the sale of them in the hands of some wide-awake man in Ohio, or other place so remote from the paper city, as to avoid unpleasant applications for personal inspection of the "city" by prospective purchasers. We have no evidence that this has been done in the case under consideration, save the circumstances mentioned above. But all the same, we advise every one not to invest in lots of any new city, pay notarial fees, or accept the agency for the sale of lots, without first obtaining full detailed information.

"Electrobole, the Great Alvine."

M. H. Spalding, Middlesex county, Massachusetts, and L. M. Bushey, Carroll county, Maryland, ask us about the above medicine, which is advertised to cure piles. A representative of the *American Agriculturist* called at the headquarters of the man who advertises the medicine, and was informed that it was a pill. A circular was also furnished him, which sets forth in the usual glowing style the marvelous history of the remedy. It notes that "the English navy is said to be the pride of national glory; and the British flag (Union Jack) is borne to every clime on every sea and shore; but especially where the grand interests of commerce and government are established. Squadrons of the English navy are commissioned for years in the East Indies, and the staff surgeon is there, constantly liable to encounter the most malignant infections of climatic poison. It was in the treatment of such cases, that Dr. King first approached

the preparation of this inimitable medicine." The English navy is, doubtless, a great institution, but its staff surgeons are not accustomed to start "patent" medicines. As to the name, the circular tells us: "This word is made from the Greek 'elektron,' which is *Yellow* Amber, a fossil resin, well known, said to be highly electric, and the Latin word '*bolus*,' signifying 'pill.' All this alludes to the '*Armature*,' or coating of compound resinous balm, conditioned as an *electro-magnet* to invigorate the languid nerve and thus restore the functional equilibrium." So it seems that this is another application of "magnetism" as a remedy. The public has been plied with "magnetic" belts, boot-soles, brushes, and every form of external application, and now it is asked to swallow electro-magnets as a remedy for piles.

The people of the United States are relieved of vast sums of money every year by so-called "patent" medicines, the annual expenditure being estimated at twenty-two million dollars.

The "Crescent Art Co."

Miss I. M. Friedhaber, Venango Co., Pa., inquires about the "Crescent Art Co." of Boston, which sends out plush, velvet, satin, etc., stamped with designs, which those who receive them are to fill up by painting, for which the "Co." propose to pay. This business started with coloring photographs; after these, ornamenting fabrics with paint in imitation of embroidery was proposed. We have always discouraged these schemes, because there always appeared some other object than to get work done. If the work were the only object, it could be done close at home. Sending afar by mail looks suspicious. These later imitations of embroidery in paint can have no permanence, and are unworthy the name of "Art." We have asked for and are still desirous of the experience of those who have found profitable employment with any of these concerns.

"Assorted Ribbons."

Mr. M. B. Morrison, Yakima, Co., Wash. Ter., writes us, his girls sent to the Peoples' Publishing Company of Boston, thirty-five cents for a carefully assorted package of silk ribbons, etc., etc., in accordance with the terms of an advertisement appearing in very many papers. He says: "My girls sent the required thirty-five cents in good faith, and received some cotton tapes or narrow ribbons. They would not have cost in this market more than ten cents, if a person wanted them."

EUREKA HORSE CARD, CURRY COMB,

AND SWEAT SCRAPER.

CLEANS EASIER, QUICKER AND BETTER THAN ANY OTHER COMB.

Price, 60 Cents, Post-paid.

"ALWAYS CLEAN." This novel Curry Comb and Scraper, consisting of two serrated strips of brass, is very simple and conveuient; hair or dirt does not adhere to it. There is nothing in the market so simple as the back of this comb for a Sweat Scraper, when used opened out, as shown in the accompanying illustration. The handles are conveniently shaped, covering a large surface, which enable the work to be done in a short time. **Try one and be convinced.**

Sent on receipt of one new subscription to the *American Agriculturist*, at $1.50, post-paid. Or, extend your subscription for one year for $1.50, and receive this valuable article for the stable or barn free. Sent post-paid on receipt of 60 cents.

Special Premiums

For Thirty Days.

TWO STANDARD FAVORITE BOOKS.

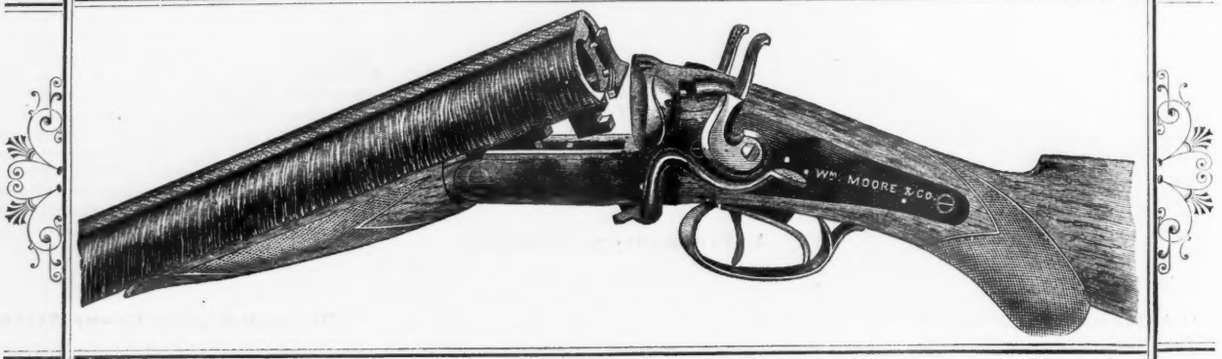
Farm Conveniences. — A Practical Hand-book for the farm, with OVER TWO HUNDRED ILLUSTRATIONS. Describing all kinds of home-made contrivances to facilitate Farm Work. Price, $1.50.

Household Conveniences. — A book which will be highly prized by every housekeeper. Profusely illustrated with OVER TWO HUNDRED ILLUSTRATIONS. Price, $1.50.

Either one of the above-named, most useful and valuable works, will be *presented*, and sent *post-paid*, to any person who, within thirty days, sends us one new yearly subscriber, (or his own subscription, if new,) to the *American Agriculturist*, English or German, at the regular rate of $1.50 a year. This offer to be named when sending the subscription. Both Books given for two subscriptions.

NEW AMERICAN AGRICULTURIST GUN.

PRICE, $15.



PRICE, $15.

The above engraving shows fully the style of our **Hand-made Double-Barrel Breech Loader,** with latest improvements, patent forend, by which the gun can readily be taken apart for carrying or shipping conveniently, doing away with the screws and pegs that formerly fastened the barrels to stock. This durable and simple invention necessitates only the lifting of the forend from barrels, to enable you to take it apart. This Gun has side snap, Walnut Stock, with Ornamented Rubber Butt, Pistol Grip, Shell Rejector, finely checkered, Rebounding Locks. Laminated Steel, Solid Plungers, of good material throughout, a most desirable Gun for Sportsmen; and if not found as represented, you can return the Gun and we will refund your money. Ten or Twelve Gauges, from 30 to 32 inches in length. Ten-Gauge Guns weigh from 8½ to 10 lbs. Twelve-Gauge Guns weigh from 7½ to 9 lbs. **We will supply this fine Gun, price $15, for 20 yearly subscriptions to the American Agriculturist at $1.50 each.**——We can supply 25 Brass Shells, Cartridge Loader, Belt with Shoulder Strap, Powder Measure, Cartridge Plunger, Cartridge Ring, Cartridge Capper, for $1.50, when ordered with Gun, or we will supply same for $2.50 when Gun is not ordered, **post-paid. ALL GUNS GUARANTEED.** Send for particulars.

Prize Essays on Keeping the Family Horse.

As announced in the July number of the *American Agriculturist*, all the Essays received in competition for the prizes offered have been submitted to a committee, consisting of Dr. A. F. Liautard, Col. J. C. Battersby, and Col. M. C. Weld. After careful examination, these gentlemen awarded to

Mr. I. H. Fickel, Plain City, O., first prize, $50.

Dr. R. F. Colwell, Centerdale, R. I., second prize, $25.

Mr. A. B. Allen, Tom's River, N. J., third prize, $15.

Mr. Fred. Grundy, Morrisonville, Ill., fourth prize, $10.

In all, seventy-four Essays were received for competition, and under the following assumed names:

Handy, Erastus Montfort, Philip, Equus Cheval Cavallo, Country Doctor, Farmer, Dervish, Steed, Emoty, Practical, E. S. Davis, Horse Chestnut, Caballero, Mustang, Little Foe, Vera Cruz, Further For'ead, Josh Billings, A Farmer Boy, Frye Junior, O. B. R., Lin, A Subscriber, Samson Wordsworth, Milton La Fayette, Kate Pierce, James Jennings, Wych Hazel, Family Horse, Bonafide, Tipity Witchity, E. D. Wals, Timothy Tugmutton, Old Joe, Canada Dick, John P. Jones, Charles Andrew, Pennsylvania Jake, John Casswell, Rattler, Lord Alfred Tennyson, W. Sherwood, Richard, Old Farmer, Peregrine Pickle, Virgil, A Trial Trip, A N. C. Farmer, An April Fool, Actæon, Telemaque, A Horses Friend, P. C. O., Scribner, Mrs. Simpkins, C. T. Volant, Pittsburgh Dick, W. N. A., Urbana, Currycomb, C. R. Franklin, M. D., Howard, Padiger G. Peasley, William Samuels, Greenleaf Edwards, Henry Oswald, Cherrywood, Farmer Hostler, Michigan Subscriber, Maple Leaf, Epsylon, Paul Jones, O'Pough Deldoc, Camden.

Several of the unsuccessful Essays are of great merit, nearly equal to those that were awarded prizes, and the committee regrets that it was not in their power to enlarge the list of prizes. The First Prize Essay is published on other pages of this number, and can but be of value and interest to every owner of a horse.

Valuable New Books.

Practical Floriculture; a Guide to the Successful Cultivation of Florists' Plants, for the Amateur and Professional Florist. By Peter Henderson. New and Greatly Enlarged Edition. New York, O. Judd Co., David W. Judd, Pres't, 751 Broadway. That Peter Henderson has been eminently successful as a commercial florist, no one who visits his establishment at Jersey City Heights will doubt. Coming to this country some twenty-five years ago, his only capital being a pair of willing hands and an unusually level head, he had the good sense to see that he must break away from the methods he had been taught in the old country, and adapt himself to a new climate and new conditions. Having been successful, he plainly shows others the steps by which that success was attained. We know of no other work which tells so clearly, and without reserve, the methods of successful floriculture. His effort seems to be to show the beginner how to begin in the most economical manner, and to carry on plant-growing successfully. All the teachings are of the most practical kind, from the building of the cheapest and most profitable houses, to those of a more costly character, for the forcing of flowers in winter. The various methods of propagating plants on a commercial scale are given in detail, with admirable clearness. Indeed, the work throughout justifies its title of Practical Floriculture. This edition is not a mere reprint, but has been largely rewritten, and brings the author's methods and experience up to the latest date, with much new matter and new illustrations. Price, post-paid, $1.50.

Broom Corn and Brooms.—As special cultures, such as Hops, Tobacco, and Broom Corn, have acquired sufficient importance to need it, the publishers of the *American Agriculturist*, besides devoting considerable space to these in their journal, have issued special treatises, or hand-books, in which the subject could be treated more in full. Thus some ten years ago, when there was a demand for it, the editors, with the aid of several correspondents in the broom-corn districts, gave in a compact form, in a small work, all that was known upon the cultivation of broom corn, with a description of the method of making the product into brooms. At the end of a decade, finding that there was a call for a new edition, they find little to add to their work, save some statistics of the trade. These they have incorporated in the new edition, which is now offered as the most complete treatise on broom corn and brooms extant. Price, 50 cents.

Our Great Fair List.

We present, on pages 353 and 354, the most complete Fair List ever before published at this season of the year. We are in correspondence with the fair officials in every State and Territory, and times and places for holding county fairs not now decided upon, will be given in our next September issue. No little labor and expense have been incurred in securing the list published in this issue, and our cotemporaries will give due credit on reproducing the same, which they are welcome to do.

Chat with Readers.

A New Fish Hatchery.—A new State fish hatchery, costing five thousand dollars, is to be erected at Cold Spring Harbor, N. Y. The Legislature appropriated the money this spring.

No Mercy for the Sparrows.—By an act of the Legislature of New York, it shall be considered a misdemeanor to intentionally give food or shelter to English sparrows.

A Wonderful Gun.—The "Daly Three Barrel Gun," described on the second cover page of this number, is a great invention, for the full description of which our subscribers should send to the manufacturers.

National Agricultural Exposition.—The exposition to be held in Kansas City, Missouri, from September 15th to November 1st, promises to be one of the finest exhibitions of the kind ever made in this country. In addition to a Crystal Palace, which is being erected for the purpose, there will be a sufficient number of pavilions and pagodas for the aggregate displays of counties and States.

Tile Drainage.—Jackson Brothers, proprietors of the New York State Drain Tile Works, at Albany, New York, have published a valuable pamphlet on the benefits of drainage. Our subscribers should send for this essay, which, together with the interesting documents bearing on the general subject of drainage, are sent free, on application.

Personal.—Mr. Chas. E. Whitman, President of the Whitman Agr'l. Co., of St. Louis, Mo., is sojourning in the East, looking up the interests of business connected with his house. He reports the sale of hay presses very large, and expects to soon place upon the market a press destined to revolutionize all previous ideas of hay presses.

Lawful Barb Wire Fence.—J. P. Voorhes, Sullivan county, New York. The most recent decision in this relation of which we have any knowledge, is that in the Circuit Court, at Watertown, New York, on December 17, 1885. In this case, the court held that a properly constructed barb wire fence upon the highway, must be deemed a legal fence.

Sheep Farming on a Large Scale.—A large tract of timber land in Sullivan and Delaware counties, N. Y., has just been secured by an association to be known as the Empire Sheep and Land Co., for the purpose of raising improved sheep for wool and for market. The lands are to be cleared, seeded down, and the sheep will be placed under the care of experienced shepherds.

The Despised Tin Can.—Dr. Walter Stuart, Wythe county, Va., finds old tomato cans unexcelled protectors for young cabbage and other plants against the rays of the sun. They should be placed lightly over the plants, he writes us, so as not to exclude the air. When removed after the second day, the ground under them will be actually moist, even after the hottest days. Those who have been using dock leaves and newspapers for the purpose, may find the tin can quite an improvement.

American Florists.—The annual meeting of the Society of American Florists will be held in Chicago, on August 16th, 17th and 18th, and from present indications, the meeting promises to be more numerously attended by members, and others, than any previous one. A rich intellectual feat will be provided by Messrs. C. L. Allen, H. A. Siebrecht, F. R. Pierson, E. G. Hill, Charles Anderson, E. Asmus, Jackson Dawson, J. W. Elliot, W. R. Smith, J. M. Jordan, and others. Circulars and other information pertaining to the meeting may be obtained from the Secretary, Mr. Edwin Lonsdale, Philadelphia.

Plans for Cheap Houses.—The designs and plans of houses, barns, and out-buildings, constitutes one of the most valuable features of this periodical. In fact, the letters and responses from subscribers indicate that thousands of them prize it almost above any other department of the *American Agriculturist*. We now wish plans and designs for cheap modern country homes, such as well-to-do farmers and beginners would like to build, that is, houses, barns and out-buildings. Readers who have already erected such buildings, are invited to send the plans to us for the benefit of their fellow readers.

"Lower California."—Referring to the paragraph with this heading in the last number of the *American Agriculturist*, Mr. Charles B. Turrill, Assistant Land Commissioner of the International Company, writes us from San Diego a courteous letter (from which we hope to quote in our next issue), asserting that his company has valuable desirable lands in Lower California, and questioning some of the statements contained in last month's paragraph.

Private Game Parks.—The recently amended game laws of the State of New York, make it obligatory upon any persons, societies, or associations having private parks for propagating or protecting fish, birds or game, to publish at least once a week for three months, in a paper of general circulation printed in the county or counties within which such lands are situated, a notice substantially describing the same, and stating that they will be used as a private game park. It shall also be the duty of such owners to put up notices warning all persons against trespassing. After any such territory shall have been designated as a private park, any person entering the grounds with the intention of catching or killing fish, birds or game, without a written permit from the owners shall be deemed guilty of misdemeanor, and in addition thereto shall be liable to a penalty of twenty-five dollars.

MISCELLANEOUS ADVERTISING.

University of the State of New York.

American Veterinary College.

139 and 141 West 54th St., NEW YORK CITY.

The only school in the STATE which has the right to grant the degree of Doctor of Veterinary Surgery (D.V.S.)

The regular course of Lectures commences in Oct. each year. Circular and information can be had on application to Dr. A. LIAUTARD, V. S., Dean of the Faculty.

POULTRY WORLD.

A monthly magazine, the oldest, largest, and best periodical devoted entirely to poultry ever published. Splendidly illustrated. $1.25 per year. Also the *American Poultry Yard*, a weekly illustrated paper devoted entirely to poultry, $1.50 per year. Both papers for $2.00. A sample copy of both mailed on receipt of 8 cents in postage stamps.

Address H. H. STODDARD, HARTFORD, CT.

THE BEST CATTLE FASTENING!

SMITH'S

SELF-ADJUSTING SWING STANCHION!

THE only Practical Swing Stanchion Invented. Thousands in use. Illustrated circular free. Address,

F. G. PARSONS & CO., Addison, Steuben Co., N. Y.

Chester White, Berkshire and Poland China PIGS, Fine Setter Dogs, Scotch Collies, Fox Hounds and Beagles, Sheep and Poultry, bred and for sale by W. GIBBONS & CO., West Chester, Chester Co., Pa.

Send stamp for Circular and Price List.

ROUGH-COATED SCOTCH COLLIE DOGS

We are now booking orders for PUPPIES, full pedigreed, and entitled to registry in A. K. R. or A. K. C. S. B., sired by such noted Dogs as Imported BOBBIE, A. K. R. 2205, winner of First Prize at Philadelphia, 1885, and RUTLAND, JR., A. K. R. 3910, sired by Rutland, E. K. C. S. B. 1394, the Champion Dog of the World. Write at once for full particulars and prices. Also, several registered Breeding Bitches in whelp. W. ATLEE BURPEE & CO., Philadelphia, Pa.

Business Department.

The Great American Tea Company.—For fifteen years the above Company has set forth its merits and claims in these columns, and we have yet to hear a complaint from our subscribers. It is one of the oldest and best of the tea companies.

Steel Screw Nails.—Subscribers desiring information regarding these nails are referred to the third cover page. They should send for the circulars. The manufacturers, Russell & Erwin Company, are one of the oldest and most reliable concerns in the United States.

Shoes for Three Dollars.—Subscribers who doubt the ability of W. L. Douglas, of Brockton, Mass., to supply shoes for three dollars a pair, as they advertise to do, are informed that this is a reliable concern; and the fact that Mr. Douglas is able to do this is, doubtless, owing to the great facilities and immense amount of business transacted.

Ensilage and Ensilage Cutters.—A handsome, illustrated pamphlet, of 162 pages, has just been issued by E. W. Ross & Co., Springfield, Ohio. It gives full descriptions of various cutters and carriers, and also much valuable, practicable information on the building of silos, preparing ensilage, and the preservation of green fodder in general.

Sad Irons.—Subscribers wishing further information regarding sad irons which require no holder or cloth, are double pointed, and iron both ways, should address the Enterpise Manufacturing Company, Philadelphia, Pennsylvania, who make and sell them. This company can always be relied upon.

Substitute for Glass.—Several readers desire to be informed whether the protecting cloth recommended by Peter Henderson, in the last December number of the *American Agriculturist*, as a substitute for glass, has proved a success. From all that we can learn this so-called "Plant Bed Cloth" has more than fulfilled the expectations that were entertained for it. For many purposes it is even preferable to glass, and no intelligent plant-grower who has once used it will willingly be without it. Its applications are constantly extending, and cloth of similar manufacture, but heavier quality, is now extensively and satisfactorily used for hay caps, wagon covers, and many similar purposes.

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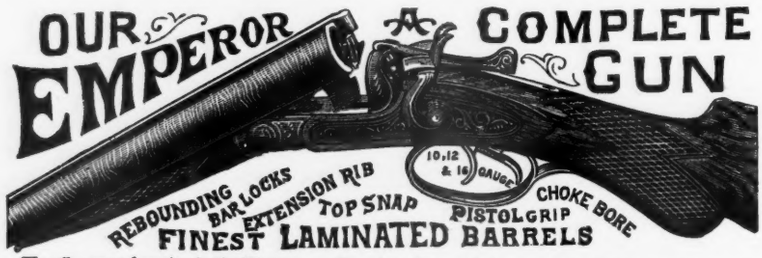

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